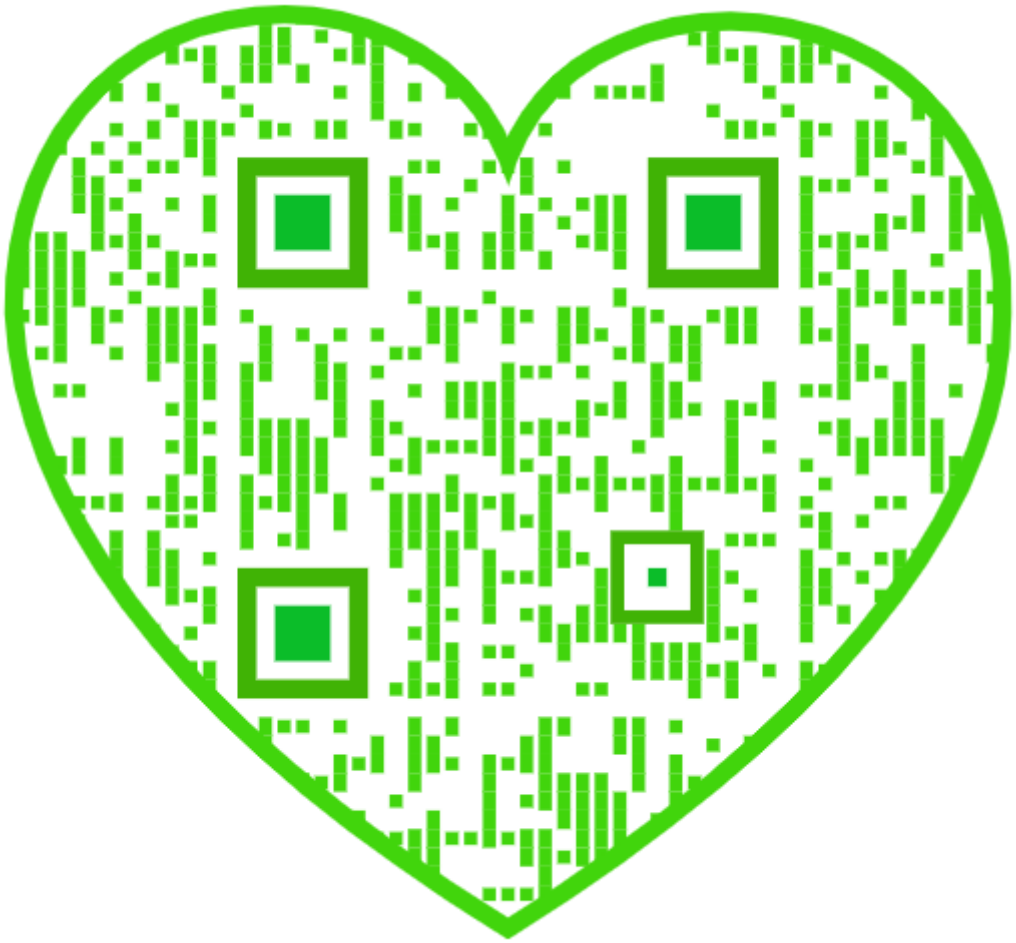

APRIL · NINETEEN THIRTY-FIVE

The Architect & ENGINEER

s-fired Boilers

5 STAR FINAL

Los Angeles "Times"

Huge presses hum to a high crescendo...delivery trucks roar away to the city's outposts and beyond. Eye-shades are laid aside, typewriters cease their clicking, brooms swish through littered paper as janitors greet the dawn. The "5 Star Final" (last edition) is on its way.

Behind the headlines is unprinted news...news of organization...of men and machines and fuel.

Drama seldom reaches the "heart" of a great newspaper plant—the boiler room. Yet mechanical efficiency makes possible the miracle of "spot news" at your breakfast table.

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ARCHITECTS and CONTRACTORS are invited to review new building or modernization plans for any job, large or small, with Gas Company engineers. This technical service is offered without cost or obligation.

Magnificent New Building of the LOS ANGELES TIMES

Architect, GORDON B. KAUFMANN

General Building Contractor, P. J. WALKER CO. Consulting Engineer, MURRAY ERICK

Heating Contractor, LOHMAN BROS. Plumbing Contractor, HOWE BROS.

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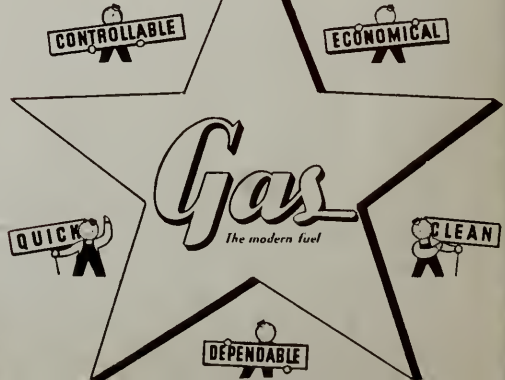

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(A non-profit service organization of which your Gas Company is a member)

447 SUTTER STREET, SAN FRANCISCO, CALIFORNIA

Notes and Comments

THIRTY-FIVE thousand people were killed on our streets and highways during the year 1934. Besides, there were 850,000 people injured and maimed — more than live in the city of Boston. True, much of the fault lies with the drivers, but experience shows that many of our main highways are far from safe for fast, modern traffic. Keeping ever foremost the idea that we must reduce the deadly annual toll on our highways, we dare not let highway improvement lag. We must stop the diversion of highway revenues and apply the full amount of these funds to the task of building a safe, well-balanced economic system of highways throughout the nation.

* * *

IT IS obvious that a great deal of business, affecting many branches of industry, and providing employment to a vast army of artisans, would be set in motion if any appreciable percentage of the retail merchants of the country could be induced to make improvements now. From the standpoint of the merchants there is abundant evidence to show that repairs, improvements and up-to-date equipment invariably pay for themselves quickly in increased business.

Another aspect is that as much as 70 per cent of the cost of such modernization goes directly to labor and promptly flows back into the channels of retail trade.

A nationwide campaign to "Modernize Main Street", using the existing local committee structure to implement it, would dramatize the Federal Housing Administration's whole effort to stimulate business housing repair and improvement. Renovation of business and industrial property has of course been part of the Federal Housing Administration's program from the beginning, but emphasis up to this time has naturally been placed primarily on homes. This brand new drive would give the needed emphasis to the business housing part of the FHA program. It would provide a springboard and an energizing slogan to start the thing going. With the national drive stemming from Washington, local campaigns should be launched in every community which has already established a housing program committee.

Success would naturally depend upon the intensity of the drive and the emotional appeal that was put into it.

ONE of the important questions to come before the Institute Convention in Milwaukee next month will be the proposed unification of the entire profession with the Institute. The last convention definitely indicated its desire to accomplish a complete unification when it adopted, without a dissenting argument or vote, a resolution offered from the floor, stating:

"The unification of the entire architectural profession in a single strong national organization, representing numerically the architects of the country is essential . . . and the American Institute of Architects is the logical nucleus for such an organization . . ." and directing the board to make changes

(a) " in the organization of the American Institute of Architects so that it will be practicable for all state societies, other unaffiliated architectural organizations, and individuals to affiliate with the American Institute of Architects";
and so that within region divisions there may be established

(b) "autonomous state divisions . . . which together will form the national unit, as many Chapters being formed within the jurisdiction of the state division as the geographical and numerical requirements dictate, these Chapters and state organizations taking the place of the present Chapters and unaffiliated organizations."

The board has carried out this convention mandate by creating a special committee to study ways and means to bring about the unification. The committee has reported favorably to the Executive Committee which is understood to be satisfied that the plan of uniting the profession with the Institute will accomplish what the convention directed. The By-Laws Committee has prepared the necessary amendments which will come up for ratification at the May convention.

* * *

HAS the day of the super skyscraper passed? Will there be another era of tall building such as we passed through before our economic collapse? According to William Orr Ludlow, chairman of the committee on Industrial Relations of the American Institute of Architects, "it is possible that skyscrapers will not be built again for many a long day; perhaps never. The skyscraper era is closing, an the tall buildings of to-day may be curiosities tomorrow." It is certainly probable that no more supertall buildings, "sky-piercers," will be required. However, when the present vacant rental space is occupied, as it one day will be, new office buildings will be needed and unless land values in large cities depreciate far beyond what at present appears likely, they will be of the skyscraper type.

Mr. Daniel Hudson Burnham, architect of Chicago, also has some decided views on the subject of the coming skyscraper. In an article entitled "Skyscrapers of the Future," he expresses the belief that "in a few years, or perhaps in a few months, we may expect skyscrapers to go up in 180 days and be replaced in two decades. They will be built to last just as long as their elevators, plumbing and other mechanical fixtures may be expected to remain serviceable and no longer. To-morrow's skyscraper will not be a skyscraper at all in the ordinary sense of heavy steel and heavy masonry. The 'synthetic skyscraper,' can be built for less than half the cost and can be erected in half the time now required. Moreover its useful life will be limited to twenty years, after which it will be salvaged. Walls will be only three or four inches thick, the outer ones enamelled with insulation between. The building will be virtually windowless, illumination coming from neon hidden in portable torcheres. Its heating plant will purify and humidify the air, and maintain a cool temperature in summer. It will bring about stabilization of present property values and tend to break up shifting business areas."

* * *

RECENT meetings of the structural engineers of Northern California have demonstrated an unusually friendly spirit between members of this profession, all of which augers for good. The meeting in Sacramento brought over 170 structural engineers together for discussion and friendly association. On April 9 a dinner at the Engineers' Club, San Francisco, was made memorable by a splendid address by Glenn B. Woodruff, chief designer of the San Francisco-Oakland Bay Bridge. Mr. Woodruff described many interesting features of the great bridge not generally known to the layman. His address will be printed in this magazine for May.

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The Architect & ENGINEER

Vol. 121 April, 1935 No. 1

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HAMILTON FIELD, UNITED STATES ARMY AIR BASE,
MARIN COUNTY, CALIFORNIA

THE SEVENTH BOMBARDMENT GROUP NOW OCCUPIES THIS 928 ACRE SITE
UPON WHICH HAS BEEN BUILT THE EQUIVALENT OF A SMALL CITY AT A
COST OF $5,000,000. STILL FURTHER IMPROVEMENTS ARE CONTEMPLATED

The Architect & ENGINEER
April, 1935

Air Base

by Homer M. Hadley

● *Early California Architecture Seen in Many of the New Buildings at Hamilton Field, Marin County, California*

THE practical completion of Hamilton Field, the Army's newest air base, in Marin County, California, was signalized by the coming of the Seventh Bombardment Group to occupy and garrison it. The field is named in honor of Lieut. Lloyd Hamilton who was killed in action near Lagnicourt, France, during the World War.

The post is located on the shores of San Pablo Bay, about twenty-five miles north of San Francisco. It comprises a tract of 928 acres, has a landing field covering approximately one square mile, and is a very completely equipped air base. Accommodations are provided for seventy commissioned officers, seventy non-commissioned officers, and eight hundred enlisted men. It is an important unit in the air defenses of the Pacific Coast. Situated about midway between the Canadian and Mexican boundaries it is out of range of gun fire from an enemy fleet in the Pacific.

The development has proceeded with consistent adherence to the original plan of making this post not solely an utilitarian military base, as fundamentally it is, but also of giving it by architectural treatment and layout as much variety and individuality as it was reasonably possible to do. The style is early Californian throughout but there is none of the monotonous, right-angled uniformity of buildings and quarters which the name "Army Post" so frequently brings to mind.

In its residential quarters it appears a charming Spanish village of white stuccoed homes with red-tiled roofs, set amid green meadows and low green hills dotted with spreading live oaks. Roads curve and wind in easy care-free manner, with a leisurely Spanish indifference to the Euclidean maxim concerning two points and one straight line. A bit more distance between points really has much to commend it—and

so they have it here in furtherance of the purpose to make this a pleasant place to live in. There are sixty-two single residences for commissioned officers and thirty-five duplex residences for non-commissioned officers.

In the technical area, however, Spanish leisure is abated and is replaced with an alert efficiency. There are an administration building, three-storied barracks buildings for the enlisted men, warehouses, fire and guard house, theater, photographic laboratory, shops, eight large hangars. All are of reinforced concrete throughout except the hangars which, although concrete-walled, have steel roof trusses. Earthquake resistance was regarded as a valuable quality for them to possess.

Due to the soil conditions prevailing in this area, pile foundations were required for all of these buildings. Where shorter lengths were sufficient, the piles were of precast concrete but where longer lengths were necessary a composite wood and concrete pile was employed. For example, in the case of certain 60-ft. piles, the lower 48 feet of this length is of wood, while the top 12 feet, rising above ground water level, is of concrete.

With the large amount of concrete work involved in the project it appeared desirable at the beginning to have a completely equipped concrete plant. Accordingly one was set up adjoining the railroad spur which served the work. Bins capable of handling five carloads of aggregate were provided, as was storage for bulk cement. The mixing plant was equipped with the latest type of photo-electric cell control, etc., for weighing all ingredients.

A fleet of fourteen trucks handled the ready-mixed concrete from this central

BACHELOR OFFICERS' QUARTERS, HAMILTON FIELD, CALIFORNIA

plant to the various points of use among the different buildings. The maximum output of any one day was 700 cu. yds. Over 70,000 cu. yds. of concrete were used in the entire job.

A very gratifying uniformity in the concrete was obtained as a result of the control of the mixing which this plant made possible. An inspector was maintained at the plant at all times. It was his duty to see that concrete was produced containing specified weights of water, cement, and aggregates. He made complete records of all mixtures and all deliveries. Frequent calibrations were made to assume the proper water-cement ratio. Aggregates from different sources and having varying moisture content were proportioned and handled in accordance with formulas worked out from the experimental data obtained when the plant was first put in production. There resulted concrete of uniform strength, uniform workability, and—what to the contractors was most pleasing—of uniform high economy: having maximum yield per barrel of cement.

The white stucco so extensively used has proven very satisfactory in all respects. It has been free from crazing and cracking, has been waterproof in driving rains, has been free from absorption and discoloration. It may be of interest to state its method of construction.

HOSPITAL BUILDING, HAMILTON FIELD, CALIFORNIA

Walls were first given a dash coat of one part Portland cement to one part sand to provide a bond to the concrete walls. After three days had elapsed, a three-eighths in. scratch coat was applied, consisting of one part Portland cement to three parts sand with the addition of ten pounds of hydrated lime to each sack of cement. This scratch coat was kept wet for forty-eight hours;

then was permitted to dry out for seven days. Then the second coat, of the same mix as the scratch coat, was floated on. It was kept sprayed with water for three days. Not sooner than a week after the application of the second coat the finishing coat was applied. It was mixed in the proportions of 90 lbs. of waterproof white cement, 10 lbs. of hydrated dolomite lime, 1 lb. of No. 200 "Marshall-Dill" white color, 125 lbs. of Fanshell sand and 125 lbs. of Monterey sand.

This final coat was sprinkled and wet down several times to prevent too rapid drying out. Various textures were used in the finish, care being exercised at all times to avoid any approach to a mechanical appearance. Despite the strong white color the finished textures are such that there is no noticeable glare and its contrast with the hand-made red roof tile, green lawns and abundant shrubbery is most pleasing.

There was a considerable use of concrete ceilings. Where special sound insulation was desired, a simple and effective treatment of the slab areas was had by placing a one-half inch layer of Insulite directly upon the forms before reinforcement was placed or the concrete was poured. When the forms were removed a second layer was cemented to the face of the first one. A neat appearance and very satisfactory acoustical values were obtained.

Gas heating has been installed through-

HEADQUARTERS BUILDING, HAMILTON FIELD, CALIFORNIA

out the buildings of the field. The heating system used for the majority of the structures is direct hot water radiation, the gravity system being used for all quarters and a forced circulation system for other buildings having long runs. The hangars, shops, and other buildings in which a large quantity of air must be heated and where heat B.t.u. per hour are installed in all rooms not served by the larger heaters. A few buildings, where the design or the minor nature of the buildings made the use of hot water heating system uneconomical, are heated by gas steam radiation.

All heating systems are thermostatically controlled and are entirely automatic in

K. E. Parker Company, General Contractors

GROUP OF BARRACKS BUILDINGS, HAMILTON FIELD, CALIFORNIA

losses from infiltration and radiation are considerable, are heated by large floor-type gas unit heaters, each having an output capacity of 250,000 B.t.u. per hour. Each hangar has a clear floor space of 123 feet, 6 inches by 240 feet, and is heated by five of these floor-type heaters with a combined output of 1,250,000 B.t.u. Ceiling-type unit heaters having an output of 75,000 operation. They are protected by gas regulators, automatic gas cut-off valves and aquastats which perform very satisfactorily and prevent danger to the system and to occupants of the buildings from failure of the gas or water supply.

In view of the fact that the soil upon which the buildings stand is saturated with moisture at all times, it was necessary to

AIR CORPS AND HANGARS, HAMILTON FIELD, CALIFORNIA

GROUP OF HANGARS, EACH 120x140 FEET, HAMILTON FIELD, CALIFORNIA

Frank J. Reilly, General Contractor

FIRE AND GUARD HOUSE, HAMILTON FIELD, CALIFORNIA

waterproof the entire area of the basements. For this purpose some 20,000 square feet of three-ply membrane waterproofing was used. Damp proofing of the exterior walls was accomplished by means of a heavy coat of an elastic waterproofing compound after which these walls were furred with 2 inch furring tile and plastered.

To reduce the annoying reverberations produced by the sound reflecting concrete ceiling panels, these were lined with a commercial sound absorptive board that was subsequently found to be very satisfactory. The sound insulation board was applied in two ½-inch layers. The first layer was laid in the forms and the concrete poured on.

Due to the prevalence of termites, all wood framing was given termite treatment. This consisted of a moderately heavy application of creosote. In addition to affording protection against termites, it also serves to prevent dry rot and fungus growths.

Landscaping has been unusually extensive for a military establishment. Over six thousand trees have been set out and many thousands of shrubs and plants. Visitors

OFFICERS' QUARTERS, HAMILTON FIELD, CALIFORNIA

Unit Masonry Construction—Common Brick by McNear Brick Company

OFFICERS' QUARTERS, HAMILTON FIELD, CALIFORNIA

Bearing Walls of Dickey Mastertile

OFFICERS' QUARTERS, HAMILTON FIELD, CALIFORNIA

cannot fail to be impressed most favorably by the charm and attractiveness which has been given this post.

The magnitude of the development is indicated by its cost: $4,875,000. Additional to buildings of all kinds are eight miles of paved streets, seven miles of sewers, eight miles of water mains and extensive grading.

Captain H. B. Nurse of the Quartermaster Corps, who has been building quarters for the Army for the past 20 years, planned and supervised construction of Hamilton Field.

COTTAGES OF HOLLOW TILE

Design of the officers' and non-commissioned officers' quarters was governed by three principal factors: harmony of architectural design, foundation and earthquake possibilities. The mild climate of Marin County and its early Spanish-American history made natural the selection of Spanish-Colonial as an architectural motif.

Harmony in design was obtained by the consistent use of white stucco for the hollow tile bearing walls and red clay tile for the roofs. Variations of design were employed to avoid monotony of appearance.

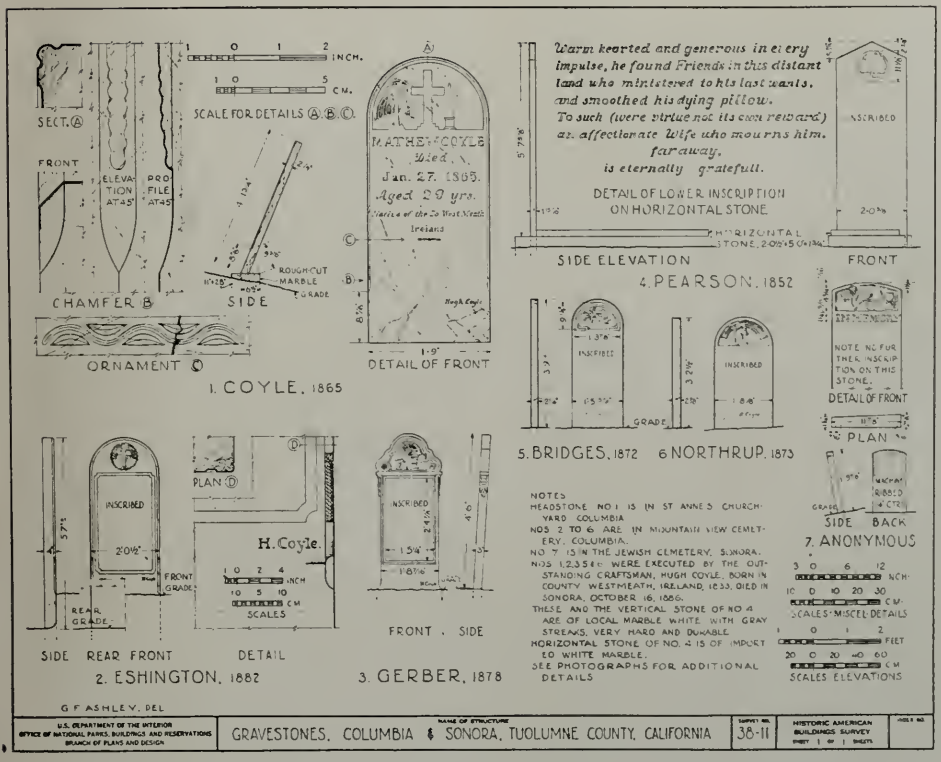
UNIQUE WROUGHT IRON STAIR RAIL IN OAKLAND RESIDENCE
CHARLES W. McCALL, ARCHITECT

HISTORIC AMERICAN BUILDINGS SURVEY

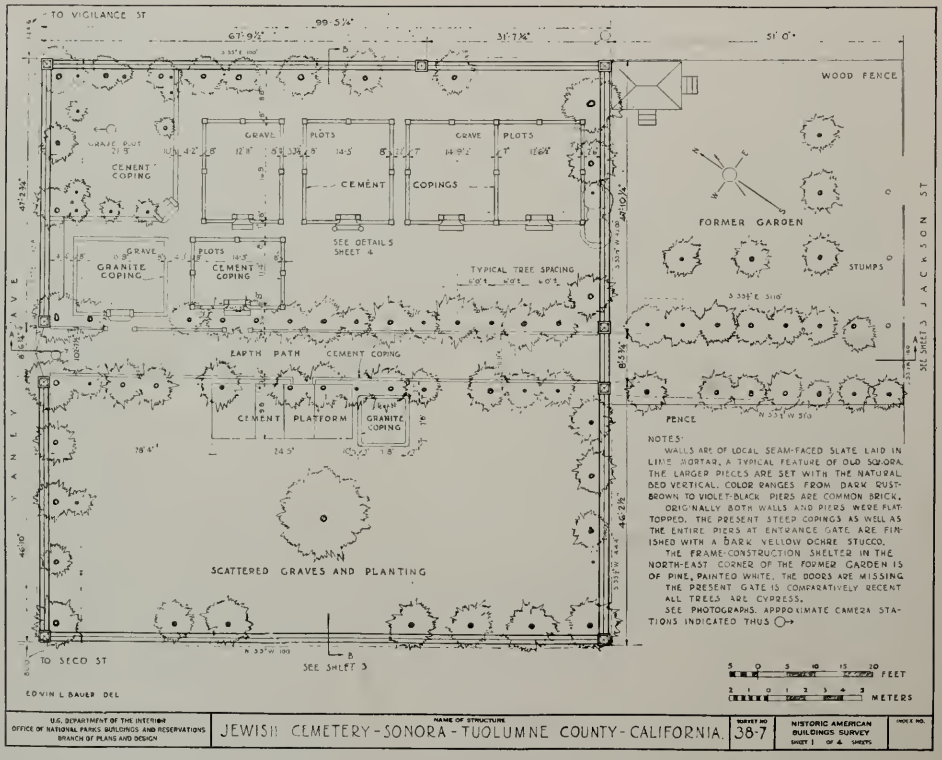
NATIONAL PARK SERVICE
U. S. DEPARTMENT OF THE INTERIOR

DISTRICT CAL. 1
IRVING F. MORROW
DISTRICT OFFICER

Detail drawings of gravestones in Columbia and Sonora Cemeteries, Tuolumne County, California. G. F. Ashley, Del.


SECT. A
FRONT
ELEVATION
PROFILE
SCALE FOR DETAILS A B C
CHAMFER B
SIDE
ORNAMENT C
MATHEW COYLE
Died,
Jan. 27. 1865.
Aged 29 yrs.
Native of the Co West Meath
Ireland
ROUGH CUT MARBLE
GRADE
DETAIL OF FRONT
1. COYLE, 1865
Warm hearted and generous in every impulse, he found Friends in this distant land who ministered to his last wants, and smoothed his dying pillow. To such (were virtue not its own reward) an affectionate Wife who mourns him. far away, is eternally grateful.
DETAIL OF LOWER INSCRIPTION ON HORIZONTAL STONE
HORIZONTAL STONE, 2.00 x 5.00 (M)
SIDE ELEVATION
FRONT
INSCRIBED
4. PEARSON, 1852
NOTE NO FURTHER INSCRIPTION ON THIS STONE.
DETAIL OF FRONT
PLAN
5. BRIDGES, 1872
6. NORTHRUP, 1873
SIDE
BACK
7. ANONYMOUS
INSCRIBED
H. Coyle.
PLAN
FRONT GRADE
REAR GRADE
SIDE REAR FRONT
DETAIL
2. ESHINGTON, 1882
FRONT . SIDE
3. GERBER, 1878
NOTES
HEADSTONE NO 1 IS IN ST ANNES CHURCH YARD COLUMBIA
NOS 2 TO 6 ARE IN MOUNTAIN VIEW CEMETERY, COLUMBIA.
NO 7 IS IN THE JEWISH CEMETERY, SONORA.
NOS 1,2,3 5 6 WERE EXECUTED BY THE OUTSTANDING CRAFTSMAN, HUGH COYLE, BORN IN COUNTY WESTMEATH, IRELAND, 1833, DIED IN SONORA, OCTOBER 16, 1886.
THESE AND THE VERTICAL STONE OF NO 4 ARE OF LOCAL MARBLE WHITE WITH GRAY STREAKS, VERY HARD AND DURABLE.
HORIZONTAL STONE OF NO. 4 IS OF IMPORTED WHITE MARBLE.
SEE PHOTOGRAPHS FOR ADDITIONAL DETAILS
SCALES-MISCEL. DETAILS
SCALES ELEVATIONS
G F ASHLEY, DEL
U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF NATIONAL PARKS, BUILDINGS AND RESERVATIONS
BRANCH OF PLANS AND DESIGN
NAME OF STRUCTURE
GRAVESTONES, COLUMBIA & SONORA, TUOLUMNE COUNTY, CALIFORNIA
SURVEY NO.
38-11
HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 1 OF 1 SHEETS
ADDL'L NO.

Plan of Jewish Cemetery, Sonora, Tuolumne County, California. Edwin L. Bauer, Del.


TO VIGILANCE ST
99-5½"
67'-9½"
31'-7½"
51'-0"
WOOD FENCE
GRAVE
PLOTS
GRAVE
PLOTS
CEMENT COPING
CEMENT
COPINGS
SEE DETAILS SHEET 4
FORMER GARDEN
STUMPS
GRAVE
PLOTS
GRANITE COPING
CEMENT COPING
TYPICAL TREE SPACING
4'-0" 4'-0" 4'-0"
EARTH PATH
CEMENT COPING
CEMENT PLATFORM
GRANITE COPING
FENCE
N 33½ W 310
SCATTERED GRAVES AND PLANTING
TO SECO ST
SEE SHEET 3
SEE SHEET 3
JACKSON ST
VANNEVAR AVE
NOTES:
WALLS ARE OF LOCAL SEAM-FACED SLATE LAID IN LIME MORTAR, A TYPICAL FEATURE OF OLD SONORA. THE LARGER PIECES ARE SET WITH THE NATURAL BED VERTICAL. COLOR RANGES FROM DARK RUST-BROWN TO VIOLET-BLACK. PIERS ARE COMMON BRICK, ORIGINALLY BOTH WALLS AND PIERS WERE FLAT-TOPPED. THE PRESENT STEEP COPINGS AS WELL AS THE ENTIRE PIERS AT ENTRANCE GATE ARE FINISHED WITH A DARK YELLOW OCHRE STUCCO.
THE FRAME-CONSTRUCTION SHELTER IN THE NORTH-EAST CORNER OF THE FORMER GARDEN IS OF PINE, PAINTED WHITE. THE DOORS ARE MISSING. THE PRESENT GATE IS COMPARATIVELY RECENT. ALL TREES ARE CYPRESS.
SEE PHOTOGRAPHS. APPROXIMATE CAMERA STATIONS INDICATED THUS
5 0 5 10 15 20 FEET
2 1 0 1 2 3 4 5 METERS
EDWIN L BAUER DEL
U.S. DEPARTMENT OF THE INTERIOR
OFFICE OF NATIONAL PARKS BUILDINGS AND RESERVATIONS
BRANCH OF PLANS AND DESIGN
NAME OF STRUCTURE
JEWISH CEMETERY - SONORA - TUOLUMNE COUNTY - CALIFORNIA.
SURVEY NO
38-7
HISTORIC AMERICAN BUILDINGS SURVEY
SHEET 1 OF 4 SHEETS
INDEX NO.

Clients

Architect's Stenographer Jots Down Her Observations of a Typical Consultant Waiting to See the Boss

WORDS! If only I could use them. There's a client in the office this moment, whistling under his breath, yawning with a ho-ho-ho, ho-ho-ho, walking about aimlessly, looking at architectural studies on the wall. The impression is that he needs a curb, something to bridle undirected energy. . He mutters:

"Trying to get something done, by golly! —wanted an adobe, Spanish roof, but costs too much. The fellows on the Board don't quite like this"—whispering to himself: "Size 12 x 18, sssssss, sssssss, sssss."

I very well know he's looked at his plan and revisions twenty times; but, in his nervousness, feels that he must once more thoroughly go into the matter while waiting for the architect. Lights cigaret, fingers hat on head. Big business man from next town, population three thousand. Very important. Whispering so loudly to himself, I look up. Nothing at all, nothing at all. His foot now tap, tap, tapping, tap, tap, tapping. Ho hum hum hum. He feels of his Legion button; adjusts coat. Folds his hands in lap. Again takes plans and begins another exursion into dimensions and materials.

"16 x sssss, sssss, sssss."

Sits quietly; beginning to hum under breath. Stares fixedly at picture of gymnasium on wall. Rises, walks to wastebasket, throwing in his burning, half-smoked cigaret. "Oh Boy!" and continues whistling gently. Coughs, a nice, big effort at the end of several little hacking attempts.

Spreads out wrinkled, grey-white handkerchief, makes choice of likeliest spot and blows vigorously; smacks lips and returns handkerchief to pocket. Brushes clothes, flicking off lint. Stares at gymnasium picture again, tongue out of corner of his mouth about half an inch. Has bright thought, face lights up, takes envelope out of pocket and returns it, whistling bouyantly.

At last, at last, he is sitting quietly with folded hands, a low whistling tune his only activity.

But now he pushes hat back, wipes brow, brushes clothes, and unrolls plans again. "Is that an erasure?" addressing me. I give it to him and his brow immediately knits. At this juncture the architect appears.

"Did you read last night's paper?" says he. Before the architect can answer he proceeds:

"Yessss, sir. I drew up a plan, you know, a rough sketch of what I want. I drew up two or three; in fact, I drew up a half dozen. Now, I want to know how much it will cost, so that I can go before the City Council tomorrow night and tell the boys. Well, what I wanted to say, Hghghghgh, I found it's awfully hard to

make anything out of a square building. Well, now, I will tell you what they want, the Board, a long roof in front to break up the front. Ahem, mmm. I've worked on this darn thing and I cannot satisfy them. The City Council . . . now, there's Edgar Smith, you know, Dr. Edgar Smith, he thought there ought to be a long hall. Now, I really don't know his reasons, he seemed to think. . . . He thought if we had a square hall . . .".

The architect says, "O yes, I see; but money goes into big trusses."

The client continues, running his fingers over the plans:

"Dont pay any attention to these benches; we'll cut them out. And then, this back here that's where they want that little room."

Architect: "People standing out in the hall can hear the noise this will make; it won't be so nice. Why not put it anywhere but near the front entrance hall?"

Client: "Well, now, that's where the ladies wanted it. Right there. No, there's no committee. We just get together and talk about it. We just thought. . . . But a door could be put in there. And then we want to put in a boy scout room, and a furnace room; I figure the basement won't be used very much. We'll have one big basement. Oh, well, that was just an idea, you know, trying to get something that we can agree on down there. Yes, the furance should heat the whole building."

Says the architect to himself, "Powerful furnace."

The client goes on: "Well, now, the thing is coming up to a pretty good-sized building. First, we wanted a small building for Veteran's purposes only; but, then, they felt they might as well have an auditorium."

Architect: "These dead corners for sound . . . and a great, big post wherever these trusses come. Hmmmmm."

Client: "Well, it was just an idea so that we can get ahead with something. I talked with them, showed them a sketch, anything to get ahead with the darn thing. What I came to you for is, can you give us a figure? We figured two-seventy or eighty a square foot."

Architect: "We'll kill the job if we don't give a little accuracy to it and I can't give you a figure right off this minute. If you'll give me just a little time—"

The client: "No, we don't want you to spend any time on it. We just want to know if a building like this sketch could be put up, do you think?"

Architect: "I might guess three or three and a quarter; but I MUST have time or I'll place myself in a ridiculous position."

Client: "But I MUST report to the Council. Maybe I better come up again tomorrow morning."

Architect: "I'll get the dope for you; tomorrow will be fine; I'd really like a little time to go into the thing. I may drive through your town tomorrow and see you in the morning."

Client: "ALL right! My hat's in the ring."

Architect: "ALL right! See you tomorrow."

Architect: "Whew! The world's worse! But he's all right. Did you credit the glass company with those plans?" And the city father fades from mind to allow the next subject of equal importance to take precedence.

And this, thinks the steno, is Living; this is how we are actually living the precious days of our one and only life. First, we're babies and don't know what we want, next we have an idea of what we'd

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Printing Plant

by Frederick Hamilton

● *Recorder Building in San Francisco Outstanding Example of Modern Design and Mechanical Layout*

THE new Recorder Building at 99 Van Ness Avenue, South, San Francisco, marks a departure in printing and publishing plants in the West, not alone in architectural treatment but in structural design and improved mechanical layout.

Due to the irregularity of the lot there were a number of schemes laid out before a satisfactory solution was obtained. It was necessary to locate the various units so as to produce maximum plant efficiency.

In designing the exterior it was the desire of the owner and the architect to obtain a building which would be economical to construct, original in conception, and colorful in appearance. It is believed that these objects were accomplished. Buff walls and green pilasters, chosen for harmony of color, present an interesting facade. This selection, together with the gold letters in the company's name, produced the desired color effect. Particular attention was given

Composite Photo by Moulin

BUILDING FOR THE RECORDER PRINTING AND PUBLISHING COMPANY. SAN FRANCISCO
Will P. Day, Architect and Engineer

Skylights by Wieland and Kolthoff, San Francisco

ROOF OF THE NEW RECORDER BUILDING, SAN FRANCISCO

WILL P. DAY, ARCHITECT AND ENGINEER

The skylights give perfect daylight to the Recorder composing rooms.

SAN FRANCISCO
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Photo by Moulin

DETAIL OF FACADE, RECORDER BUILDING, SAN FRANCISCO
Will P. Day, Architect and Engineer

to the specification on exterior cement plaster, both as to materials and workmanship. White cement was used and the entire finished surface waterproofed.

The main entrance is at the intersection of Van Ness Avenue, South, and Twelfth Street. Upon entering the building at this point, the superintendent's office and the working offices are adjoining, facing on Twelfth Street, which places the printing plant in direct contact with these offices. The layout of the plant itself offered no unusual problems except the lighting. During the development of the plans, effort was made to place the saw-tooth skylights towards the north, but on account of the irregularity of the lot and the advisability of certain symmetrical arrangement of columns, a satisfactory exposure was made to the northwest. The northwesterly exposure was not considered detrimental, inasmuch as the second story section, facing Van Ness Avenue, South, cast the proper shadows to shut out the sunlight. On the first floor spacious locker rooms, toilet rooms, lunch rooms, etc., were provided at the northeasterly side of the plant.

The private, general and sales offices are placed on the second floor, facing on both Twelfth Street and Van Ness Avenue, South, giving the offices a prominent location, and at the same time, direct contact with the superintendent of the plant. The offices of The Monitor, located on the second floor, have a separate entrance on Twelfth Street. In placing the elements in

the positions chosen, it enabled the owner to have a rentable area for stores and offices on Van Ness Avenue, South, with a separate entrance for these offices on Mission Street.

The offices and stores throughout the building are provided with direct radiation for heating, supplied on the one-pipe low pressure system. The printing room is provided with an air conditioning equipment consisting of fan, heating coils, air washer and automatic controls so that the temperature and humidity of the room can be maintained at a constant point. This also provides ample ventilation for the working space.

Exhaust ventilation is also provided for the toilets, wash rooms, etc., in connection with the printing department. Steam is furnished for the direct radiation and for the air conditioning equipment from a low-pressure, steel fire-box boiler, fired with natural gas for fuel.

The building is of reinforced concrete throughout and is designed to meet the requirements of the Riley Act relating to lateral forces. The concrete mix was designed to produce a concrete having a compressive strength of 3,000 pounds per square inch at 28 days—by this means column sizes were reduced and girders made shallow.

Modernism

by Fred'k. W. Jones

● *Richard Neutra Lectures on the New Thought in Architecture Before a Critical Berkeley Assemblage*

BERKELEY gave Richard J. Neutra, noted for his revolutionary ideas, a surprisingly generous welcome at the Women's City Club March 20th. The large attendance indicated an interest in the modern movement not generally credited to the college city. Mingled with society people, university professors and students were many well-known San Francisco and East Bay architects whose work has yet to show any appreciable leaning towards modernism. There was Bernard Maybeck, designer of the Palace of Fine Arts, who found it necessary to move further front that he might hear all the speaker had to say. Also seated close to the stage was John J. Donovan, school architect and writer; Henry H. Gutterson, architect of English, Colonial and Spanish homes in the Bay region, and J. H. Le Feaver of the office of Miss Julia Morgan, who is Mr. Hearst's architect and who designed the Roman-

GARDEN APARTMENTS
Richard J. Neutra, Architect

RING PLAN SCHOOL INTENDED TO SERVE A WIDELY DISTRIBUTED POPULATION
Richard J. Neutra, Architect
Each classroom, with free grouping of children, opens into a private schoolroom patio.

esque building in which the lecturer was speaking.

The program was in charge of Mrs. C. J. Linford, who occupied a seat on tht platform with Warren Perry and Mr. Neutra. Mrs. Linford prefaced her introduction of Mr. Perry with a few well chosen words on architecture.

"Back of every structure, whether it be a home, a school, a church, a bridge, or a skyscraper," she said, "is a blue print, and back of every blue print is an architect—a man who dreams dreams for people and with them—a man who measures progress in terms of buildings.

"Every new skyscraper is the realization of two dreams—a business man's which materialized, and an architect's interpretation of that success. Every school building from the old red school house down to our most modern structure is a realization of someone's dream for our education. Every home is an architect's interpretation of some couples' dream.

"Berkeley has an architect who dreams his own dreams, interprets the dreams of others, and is training new dreamers to carry on the work in the future. Mr. Warren C. Perry, Dean of the School of Architecture at the University of California, is a product of Berkeley and well known to all of us. We consider it a great privilege to have him here tonight to act as our chairman."

Mr. Perry said: "We are to consider architecture from three viewpoints. First, use or function; second, materials, and third, that elusive which we refer to as beauty." Mr. Perry admitted that the materials of which our buildings are made are an important factor in creating a successful structure. Progress in the development of new building materials naturally has had a tendency to change the design of some types of buildings. At present we are all very much interested in the exact expression of the function of buildings. In introducing the speaker of the evening Mr. Perry expressed a desire to "remain Neutra in the matter of modern vs. the old school."

Mr. Neutra was at a disadvantage in that he was suffering from a severe cold which made it difficult for him to talk so that all in the room might hear distinctly. The lantern slides, however, helped to keep the audience in a receptive mood. Some of the pictures were familiar to members of the profession while others were new and strikingly original. To hear Mr. Neutra one is impressed with his sincerity and efforts to give us something in architecture that fits in with present day needs. Ninety-five per cent of our children, he asserted, are our architectural environment. He said he had been trained a conservative and naturally had acquired a humble and admiring respect for what had been accomplished in the past. Modern living, modern ways, modern thought, all call for a readjustment of our methods and style of building. Mr. Neutra said, among other things:

"My appreciation for historical architecture is great and sincere. I have graduated with distinction from a most academic university and have subsequently in many countries given earnest personal study to architectural monuments of the past. But

HOUSE FOR MR. KOBLICK, ATHERTON, CALIFORNIA
Richard J. Neutra, Architect

HEALTH HOUSE, GRIFFITH PARK, LOS ANGELES
Richard J. Neutra, Architect

Health House is an architectural demonstration of biologically correct living carried out in steel, plate glass, and air shot concrete. Plunge, wading pool, gymnasium court, and open air children's theater complete the layout.

today everything is changed; we cannot build as did our ancestors. We must build as parents of the next generation.

"Preaching does not help, but environment influences a growing child most effectively. The room, the house, the street, the community, the school, are the architect's contribution to this environment. There is no use to make them according to old standards. Old architectural environments fitted the life at that particular time—in the medieval days, in pioneer days, or, in the time when a French king or the Roman Pope built their monuments. But all this is of no help to our children since use and purposes of building have changed materially as have our means and tools.

"Materials today are much more manifold and have lost to a considerable degree their local characteristics. The material specification of a Doric temple in Selinunt or Athens was brief: Lime stone. A small job of today, like a gas filling station, has a long drawn out specification even if only brand names of materials are enumerated.

"Craftmanship is being supplanted by qualities which are indigenous in industrial production and are less expensive and therefore of broad significance to the masses of consumers. The electric light bulb is a quality product of our time and surpasses the subtlety of Chinese lacquer goods. But it sells over the counter of the 5- and 10-cent store to millions and could not exist if only made for one single Chinese emperor, whatever his resources.

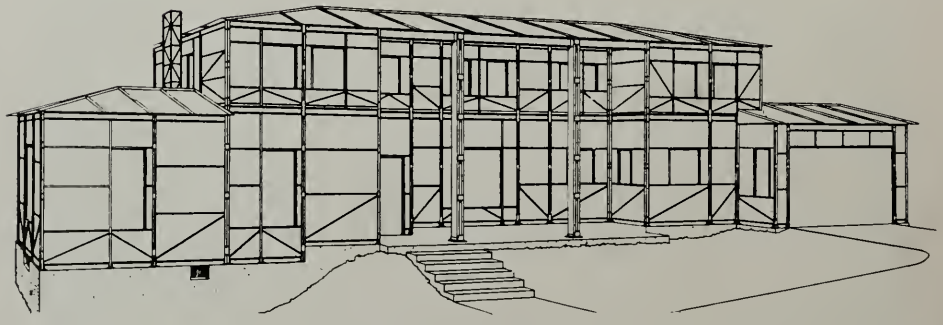
"Our new buildings are financed in a different way than were the palaces of Louis XIV or the temples of Amenhotep. The time element has invaded architecture in the form of a time schedule of construction and in the provision of a definite amortisation period.

"We must try to make the best of our constellation. Loyalty to the time into which we were born may in the long run make us comparable with those who have built before us."

APARTMENT AND OFFICES OF ARCHITECT, WEST FRONT FACING THE WATERS OF SILVER LAKE, LOS ANGELES
Richard J. Neutra, Architect

ARBOR, RESIDENCE OF BENJAMIN S. KUTLER, BEVERLY HILLS
RALPH C. FLEWELLING, ARCHITECT

PERSPECTIVE, STEEL FRAME HOUSE FOR TUDOR GAIRDNER, HOLLYWOOD
Carleton M. Winslow, Consulting Architect



DESIGN OF STEEL FRAME, HOUSE FOR TUDOR GAIRDNER, HOLLYWOOD, CALIFORNIA

Steel

by J. W. Williams

● *Homes Now Being Designed to Resist Earthquake, Fire and Wood Destroying Organisms.*

THE increasing demand on the part of prospective home builders for steel frame construction is a "call to arms" for architects, contractors and fabricators.

It is the lure of something different, something new, something infinitely better at little or no extra cost, that captures the public mind. Home replacement or new home building will never increase appreciably until the home owner and home builder is offered something better than what he now owns or than what is for sale already built. The steel frame home, however, is beginning to mean to the building industry what the annual new model means to the automobile salesman. It is gradually creating dissatisfaction with the old and a desire for the new, a desire which can well be augmented into a building "boom" if architect, contractor and fabricator unite in a concerted effort to further develop and promote the steel frame home. Rapid strides have already been made in this direction.

A few years ago steel framing in domestic architecture was conceivable only for the palatial residence and the question often arose as to whether the additional cost warranted the departure from conventional forms of construction. No longer is this the case—new methods of steel construction have been developed which make this argument less and less forceful, and today it is possible to have all the advantages of a steel frame home at a cost no higher than that of the old-fashioned wooden construction.

It is these many advantages, all of which can be found in no other one type of construction, that makes the appeal of the steel frame house so great to the prospective home builder. First, steel construction is vermin proof—the inroads of the termite are becoming increasingly devastating until the problem has assumed alarming proportions. Steel is also impregnable to other forms of vermin, including rodents and roaches. Steel will not rot—both dry and wet rot cost millions of dollars in damage every year. A steel structure eliminates cracking of plaster due to shrinkage, sagging floors and door and window jambs out of alignment, due to "settling." What house of today does not have its undesirable cracks after a year or so? This item alone costs the householder much expense year after year which would be avoided if the house had a steel frame. Steel frames can be built fire proof and earthquake resistant—both vitally important points—at

less cost and loss of space because steel is stronger.

Flexible Interiors

Another important asset to the builder is the flexibility of the interior. Steel can be built with longer spans than other materials. It is entirely feasible to build the steel frame so that the interior partitions may be shifted at will, allowing for changes in the interior or for an expansion of the home. This feature alone has sold a steel frame to more than one home builder.

Several different methods of steel frame erection are being successfully employed today here on the Pacific Coast. One method utilizes a wrought steel pipe framework to which is welded a reinforcing fabric made of small channels, and the whole encased in concrete. A second method employs cellular steel sections for walls and open truss steel joists for floors. The joists are hung on heavy steel rods running through holes in the cellular sections. Galvanized steel sheets of a medium weight are utilized in another type of construction—the structural members, including joists and studs, being formed from the sheets. This makes a very light weight construction, yet has all the needed strength for a steel frame home, and is quite economical to build. Light structural sections welded into one rigid unit of floors, walls and roof also find a ready use in steel frame construction and are employed by more than one steel frame fabricator.

An interesting example of this last named method, employing standard structural sections throughout, is seen in a new two-story, 12-room residence, just completed, in the Outpost Estates, Hollywood, California, for Tudor Gairdner, a Los Angeles attorney.

The departure from the more usual forms of residence construction in the building of this home is not at all apparent in the appearance of the finished structure. In fact the house was originally designed in wood frame. Few, if any, changes were made in the elevations and the home is practically an exact reproduction of the owner's and architect's original sketches designed for wood construction.

The house is of California-Colonial design with stucco exterior and decorative wooden shutters. Clay tile shingles are used for the roof. The central portion of the house is two stories in height with a one-story wing at either end. One wing is intended as a large living room and game room, and a laundry and two-car garage comprises the other. The overall frontage of the house on Outpost Drive is 94 feet, with a total depth of 39 feet.

Because the ground on which this home is built slopes in two directions it was impractical to build foundations on one level. Accordingly the floor levels of the first story are set on five different elevations. Concrete foundation walls and basement walls were reinforced with steel and carried up to first floor level.

It took just five days for five men to erect, bolt and weld the entire steel frame of this house.

STEEL FRAME HOUSE—Steel anchor bolts are imbedded in concrete foundation to secure column members of the steel wall framing units.

Steel for the walls had been shop fabricated and welded, prior to delivery, into units from 4 to 8 feet wide and one story in height. The side members of each unit are constructed of hot rolled structural steel channels with the flanges turned out, so that when joined together the side members of two adjacent units form a hollow box column. The top horizontal member of each unit is a light rolled steel beam of weight sufficient to carry whatever loads may be imposed upon it by second story floor joists, second story wall columns, or roof trusses. The units are internally braced with horizontal or diagonal members. Into each wall unit are framed all window and door openings with angle irons drilled to take the steel sash.

Method of Erection

The erection of these steel wall units was accomplished by men working in pairs. A unit was held in place by bolting the bottom clips down to the base plates on the foundation. Another unit was then similarly placed beside the first, and the side members of the units were joined together with a steel batten clamp. As a wall was raised and aligned, an electric welder followed along and permanently welded the steel batten clamps and angle clamps by which the units had been connected. He likewise welded all bolted connections to make a permanent tie.

Second story steel was erected in much the same manner as the first floor frame. Steel floor joists were laid across the floor areas in most cases spanning from wall to wall. One heavy structural steel I beam runs through a section of the house and is supported on steel H columns from the foundations. This beam picks up a section of the steel floor framing and steel joists are tied to the beam by clips and welding.

STEEL FRAME HOUSE—Tile shingles stacked on roof ready for laying.

When the second story sub floor had been laid the wall units were raised by a small hand hoist and set in place around the walls. While a definite attempt was

STEEL FRAME HOUSE—Exterior view at south end of garage showing method of using 3/4" furring channels around corners and method of using 3/4" furring channels for arched window openings.

made to keep the second floor unit directly over the corresponding first floor unit this practice was not mandatory. Where they did not line up, the side channels of the higher unit were welded directly to the spandrel beams at the top of each first story unit. Second story steel floor joists also rested on these spandrel beams and were arc welded to them.

A light steel roof trussing system was used in this Hollywood home with wooden nailing strips bolted to the top truss members of the A type trusses. Onto these strips a solid sheathing of 2-inch tongue and grooved fir planks was spiked. Over this sheathing a built-up roof of felt and asphalt was applied and topped with clay tile shingles.

With frame erected and floors and roof in place, the builders then commenced with their furring and lathing, installation of utilities and services. Three quarter-inch steel channel furring was wired over the steel framework of both interior and exterior walls and this furring was covered with a Lathtex plaster base, consisting of a paper backed expanded metal lath of 3.4# weight. Wherever it was necessary to carry up piping and conduit through the walls a furred wall was built out of steel channels in the manner usual in Class A construction. On top of the plaster base coats of stucco were applied on the exterior and three coats of hardwall plaster on the interior. A metal base and plaster mould has been used throughout the house. All pipes and conduits are carried through the furred ceiling area and under the second floor to proper outlet points. Silica cement lined water pipe is used throughout to avoid corrosion, and all electric wires are carried in conduits, qualifying the house for a Red Seal rating. The heating system consists of warm-air gas-fired unit furnaces located in the basement.

No Supporting Partitions

One of the unusual sights to be seen during the construction of the unit steel home in Hollywood was the completed frame with roof sheathed, and sub-floor laid and still no interior partitions of any kind. As the steel floor joists generally span from wall to wall, there need be no interior bearing partitions. Likewise the roof is carried on steel trusses spanning from outside wall to outside wall. The elimination of supporting partitions was considered by the architect to be a matter of great convenience in arrangement of his interior rooms.

Very few difficulties were encountered in the erection of the house. Wall units were placed without adjustment or field changing.

Carpenters quickly adapted themselves to handling and working with the steel. Lathers familiar with fireproof construction were of course necessary. Plumbers and electricians seemed at ease with the work and experienced no difficulties, in fact made better time than in most usual construction as they worked in the clear and walls were built up around their services in some instances.

A careful analysis of the house as it neared completion gave some very definite impressions. The first of these was that the house was remarkably simple and strong. Structural analysis by impartial engineers gave the building a rating as 2¼ times stronger than is required under Los Angeles city ordinances covering earthquake strength. The second was that the building would be free from termite or fungus attack in any structural members. No wood was used in any manner except in the sheathing and sub-floors and small nailing blocks for trim.

A particularly important point is the fireproof construction of this home. Such

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Financing

by Chas. Bursch
Chief, Division of Schoolhouse Planning, State of California

● *State Should Contribute to New School Buildings Where Communities Are Unable to Carry the Burden*

A MAJOR obligation of the Division of Schoolhouse Planning, California State Department of Education, is to aid in the coordination of the efforts and activities of groups that play important parts in a sensible, practical, safe and educationally defensible schoolhousing program. It is because of my recognition of the key position now held by structural engineers in any such schoolhousing program, and my belief that there are some things that you and only you can do to remedy the somewhat disjointed condition that now prevails, that I consented to take a small portion of the limited time of your conference.

The schoolhousing activities in California, never too well cared for as to financing arrangements and as to controls necessary to the safety of pupils and economy to taxpayers, were thrown into a somewhat chaotic condition following the enactment of certain laws two years ago. I refer, of course, to the Riley Act and the Field Bill primarily but should not fail to mention the 5 per cent limitation imposed by the Riley-Stewart tax amendment. In this connection also should be mentioned the opinion of the attorney general which in effect said that school trustees were personally liable in case of damage or injury from unsafe buildings if negligence on their part could be proved. He even went so far as to point out that trustees might be expected to close school buildings to the use of pupils even though suitable quarters elsewhere could not be found, or the people of the community would not provide the necessary finances to correct the building deficiencies. I wish to make it quite plain that I did not say these laws and this opinion caused the chaotic condition but that the unsettled condition followed these events.

It is my contention that to a large extent these laws and this opinion focused the attention of the people of the state on bad conditions that had existed for many years. It is true, however, that these laws, without reference to their intrinsic merit, must bear the brunt of the criticism that falls naturally upon any messenger of bad news.

There are a number of basic reasons for the present difficulties connected with existing schoolhousing. Perhaps the most important of these is the relatively inadequate

*Paper read before the Structural Engineers at the Sutter Club, Sacramento, March 22.

legal provision for the proper financing of capital outlays for schools. At present, school funds for building can be obtained: first, by school district bonds which are limited to 5 per cent of the assessed valuation of the district, and second, by a direct district tax. With these limitations placed upon the financing of capital outlays for schools there are many school districts of the state totally unable, under the law, to provide proper school buildings. There are also a large number of districts that can provide proper housing only when they have imposed upon themselves tax rates which any reasonable person would consider exorbitant. There are, of course, also many districts that can and do supply for their children some of the best schoolhousing found anywhere in the nation. It is fortunate, indeed, that when the program is viewed on a statewide basis that most of the children of the state reside in school districts that are well able, under the present laws, to provide adequate facilities.

It might well be argued, since a majority of our children can be properly and safely housed, that we should be satisfied and continue to work under conditions as they exist. I believe you will agree with me, however, that the nature of the values concerned are such that we cannot be satisfied until it is reasonably possible for every school child to be safely housed. Furthermore, from a practical point of view the fact should not be overlooked that it takes but a very few specific instances of apparent unreasonableness or unworkability in a law to create powerful and effective opposition to it.

Curb Latitude of Officials

Another major cause for the schoolhousing program to be in its present condition is the fact that school trustees, with their natural unfamiliarity with school construction problems and with their almost uniform zeal for economy, sometimes sound and sometimes otherwise, have had too free a hand in making major decisions regarding school construction. In some instances the present structural deficiences of school buildings are directly traceable to arbitrary decisions on the part of school trustees to make changes in the building from the plans and specifications presented.

Closely connected with the trustees' responsibility in this connection is the inability of people generally to learn the fundamental lessons taught by such disasters as earthquakes and fires. This common failing leads quite definitely to a situation that permits trustees to accept construction decidedly as regards the above mentioned hazards.

Still another contributing factor in the present situation is the lack on the part of people in general and of many trustees to appreciate the need and value of the services of members of the architectural and engineering professions. And the architects and structural engineers have not always sold and delivered their services to school trustees in such a way as to overcome that lack of appreciation.

Any list of causes contributing to the presence of altogether too many shoddily planned and constructed school buildings would be incomplete without mentioning the occasional "skinning" a builder gives a school district and the employment too often of well meaning but untrained and incompetent inspectors.

Since it is my firm belief, shared I am sure by yourselves, that the school children are entitled to the minimum safety assured by the Field Bill, in the case of new construction and at least strongly implied in the case of existing housing, I am presuming you are interested in proposed solutions to the school building difficulties that have been laid at the door of the Field Bill. The

fact that the Field Bill is in *reality not responsible* for these difficulties is of little consequence as long as people in general believe that it is. If we lose the inestimable value of the Field Act it will make little difference whether it was lost because of inherent weakness in the act or because of related financial and legal inconsistencies and fundamental weaknesses.

Practically all of the objections to the Field Bill would disappear, I believe, if the safe school construction contemplated were financed as successfully as is our state highway system. If the State of California would take seriously its responsibility as stated in the act it could do no less than provide the best possible method of financing school buildings. Just how state funds should be raised is not within the province of this discussion. Suffice it to say, however, that if all of the property of the state were to bear the tax burden now borne by a large fraction of our school districts for buildings there would be more money raised than is necessary for the safe housing of all our school children. Because such a burden has been borne by many areas of the state and they have not been seriously affected because of it, I feel perfectly safe in saying that it is possible for the State of California to provide the necessary funds for safe schoolhousing.

State Should Help Finance Schools

If, as many believe, the building of schoolhouses is not a proper state function the least the state should do, after the local district has made a certain effort, is to supplement those local funds with a sufficient amount to finance the necessary safe housing. Such a plan as this, however, should not be undertaken except in connection with an adequate law providing for larger and unified school districts so money of the state will not be misspent on constructing long-lived school buildings in locations that are indefensible educationally and economically. Bills have been introduced in the present legislature that would make such larger units possible and which set up a board which, if provided with sufficient state or Federal funds, could supplement funds raised by local school districts as indicated above. No great enthusiasm has been shown by the general public and not even by groups who would stand to profit considerably by the stimulation these measures would give to the building industry .

Federal funds have proved most helpful in certain spots over the state but the uncertainty and inadequacy of those funds do not indicate the desired state-wide solution. Most of us, I believe, have had a part in creating the present general sentiment that a school building is one of the most desirable type of Federally aided projects.

Even if neither of the two proceeding proposals can get sufficient legislative support to be enacted it would help some if the 5 per cent limitation on the expenditures, which is a part of the Riley-Stewart amendment, were eliminated insofar as capital outlays were concerned. It does not apply to the expenditures of money derived by the sale of bonds. By the same logic the limitation should not apply to any fund expended for capital outlay. A relatively few districts could be helped somewhat if legislation could be enacted which would free some of the excess moneys now found in frozen salary funds in the smaller union school districts. This type of district gets a disproportionate amount of state aid for teachers salaries but these districts are denied by law the right to spend the major portion of these accumulated funds for anything but teachers salaries.

Next in importance perhaps to the improvement of financing for capital outlays is to improve the relation of the trustees to

the task of strengthening existing school buildings. As long as the thoughtful and responsible school trustee is in a position that he now occupies regarding personal liability he will be hesitant to go through with a logical program of examination of existing buildings looking toward their safe reconstruction. Under present conditions if he should go through with such a program and should find that either the district cannot raise sufficient funds to do the required work or that the required vote of the people to supply the necessary funds would not be given he still would be faced with the alternatives of either turning the children out of the schools or letting them remain at an entirely unreasonable hazard to his personal fortune. In an effort to clarify this matter and make it reasonable, legislation has been proposed which eliminates the personal liability of trustees after they have made an honest effort to make the school buildings of their district safe. I refer to Senate Bill 797 by Senator J. C. Garrison and its companion Assembly Bill 1877.

Responsibility of the Engineer

Even if we should by some miracle be supplied with sufficient funds to reconstruct the existing school houses according to the accepted standards of safety, and even if the relation of trustees to this program has been made reasonable, we still would not have any hope of securing safe schoolhouses unless the structural engineers can find their proper place in the reconstruction program. As I have said on many occasions in speaking of architects, if well planned schools are to be secured by the school districts the credit belongs to the architect. I am now saying to you if safe school buildings are to be had in place of those we now have, the credit will belong to the structural engineers. Laws, plan checking and construction supervising agencies have a responsibility in setting and maintaining minimum standards but even those standards are meaningful only insofar as they bear the approval and are the result of the best trained men in your profession.

It would be presumptuous, indeed, for me to undertake to tell you what your relationship ought to be to a building project. I feel certain, however, that if I were a trustee I would make sure that the structural engineer associated with the architect on the job would sign the plans jointly with the architect. Furthermore, I am certain that the structural engineer would be kept close enough to the actual construction of the building that he could reasonably state that the building was constructed according to the plans and specifications for which he was responsible. A part of this last responsibility, I think, could reasonably be discharged by employing only such men as inspectors whom the structural engineers believe to have sufficient technical knowledge to assure that construction is according to the plans. This may not be easy to do and, undoubtedly, it will add some to the expense of planning and supervising the construction of a building. However, the foolishness and expensiveness of doing anything else is amply demonstrated in many of our existing buildings. Just how this is to be accomplished is a matter of considerable importance, inasmuch as it involves the relationship between architects and structural engineers and both of them with the school boards. If at all possible, and I believe it is possible, the structural engineers and architects should work out a simple plan of accomplishing this and without leaving themselves in the position obtaining on some projects where the architect and structural engineer have disagreed in regard to the competence of an inspector, thus leaving the school board with a justi-

fiable feeling that the experts it has employed are not certain among themselves as to what should be done.

All of us who presume to advise with school boards concerning their problems should be very much aware of the extremely complicated procedure now necessary to secure a school building or even to make an addition to an existing structure. The intricacies and complexities of this procedure, I feel certain, cannot be materially reduced if to the numerous required approvals is to be added problems arising out of differences among those who are giving advice on building problems. School trustees cannot be expected to do anything but throw up their hands in despair and cry out against red tape and racketeering.

Personally, I shall not be satisfied until some workable scheme is found to require plans and specifications to be submitted to only one state checking agency.

Do Engineers Overload Plans?

Perhaps the most damaging criticism directed toward the structural engineers during the two years of operation of the Field Bill has been the charge that plans are overloaded. Construction is too strong. "This school," I have heard trustees say over and over gain, "could be rolled down the highest mountain in the state without serious damage." Whether or not this is unreasonable criticism is for you and not for me to say.

Criticism of this sort, whether just or unjust, must be met if we are to continue with our safe housing program.

In the early years of putting into effect a drastically different concept of safe school construction differences of opinion among the engineers are to be expected and are of very real value in making the desired progress. There is no justification, from the point of view of school officials and taxpayers, even on the basis of professional pride, for structural engineers not to take advantage of every opportunity to simplify and make inexpensive the structural design of school buildings. While the law does not require the Division of Architecture to evaluate your work as to its economy it does not deny you the privilege of requesting such evaluation from those who check your plans.

Speaking as a school teacher and not as an engineer or state employee, it is my firm conviction that the cleverest structural engineer in the profession can learn something from a group of "mine run" engineers who are in a position to see and evaluate a large number of solutions.

In conclusion, may I say that whether your relation to the reconstruction of our schools will bring you in direct contact with school boards or only indirecly through the school boards' architects, you have an obligation, if the Field Bill is to continue, of understanding sympathetically the broader problems connected with the program and of supporting effectively the measures designed to solve those problems, as well as the obligation of making necessary professional adjustments, designed to increase the respect and confidence reposed in you by school authorities and by the public at large.

RANCH HOUSE AT LAS TURAS LAKE
JOHN BYERS, ARCHITECT

Traffic

by P. O. Harding
Senior Bridge Field Engineer

● *How Travel Over the San Francisco Bay Bridge will be Distributed on the Oakland-Berkeley Approaches*

THE San Francisco-Oakland Bay Bridge engineers have completed plans for the "Distribution Structure" at the east end of the bridge and the accompanying picture, photographed from a model, gives a good idea of how traffic is to be handled going to and from the bridge.

A plan view of the "Distribution Structure" has the appearance of two octopi engaged in a mortal combat, but its function in the distribution and segregation of motor vehicle traffic to and from the East Bay area, will be much simpler than a first glance at the structure would indicate.

The approaches to every major bridge serving metropolitan areas have presented individual problems, the solution of which has been influenced by certain controlling factors peculiar to that particular project.

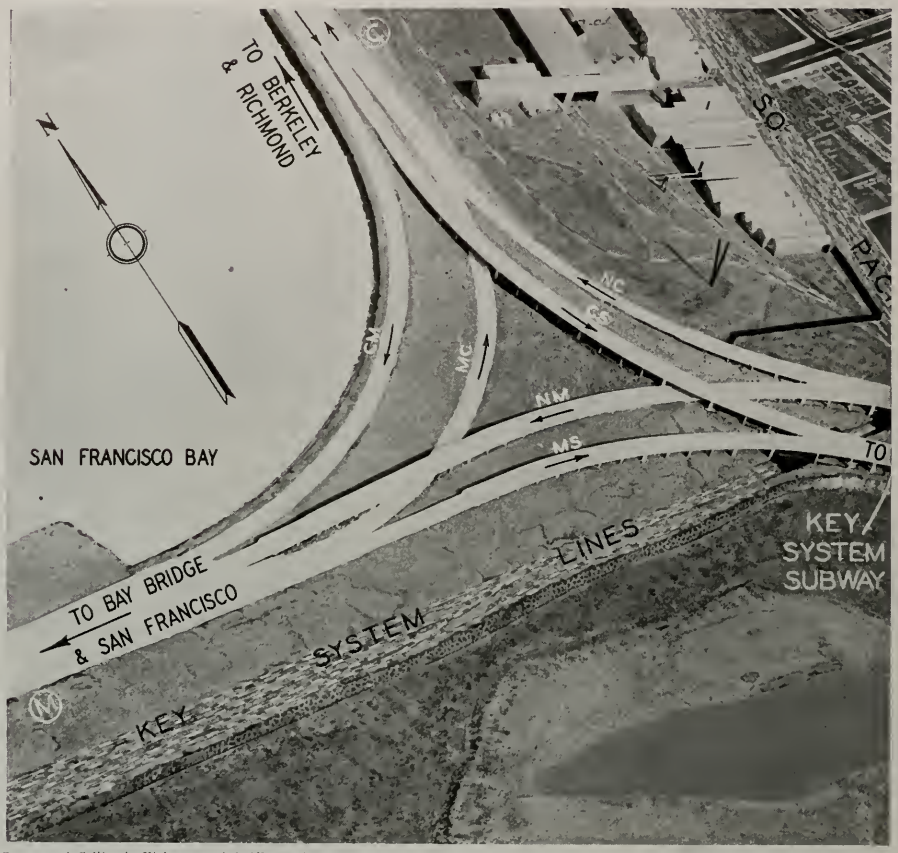
The San Francisco-Oakland Bay Bridge, for example, presents entirely different approach problems at its two ends. Generally speaking, the San Francisco downtown district is "journey's end" for the mass of users of the bridge, the San Francisco business district being a focal point of destination. The bridge enters almost the heart of the city high in the air, and the approach problem is one of getting into downtown San Francisco, where any number of city streets shortly lead the motorist to ultimate destination.

The East Bay approach problem is one of distance, collection, and distribution. Here the bridge structure at its easterly end terminates two miles from shore in the shallow water and tide flats, and the approaches assume the nature of arterials functioning as a collection system tapping a vast residential area, yet connecting with and becoming a part of the state highway system.

The original problem of locating the East Bay approach system required by the Reconstruction Finance Corporation, and later adopted by the legislature as official approaches to the bridge, involved two fundamental considerations:

1. Tapping the East Bay area so as to serve the thousands of daily users of the bridge, who, through tolls, pay off the millions of dollars invested in the project.

Plan View of "Distribution Structure," East Bay



Courtesy of California Highways and Public Works

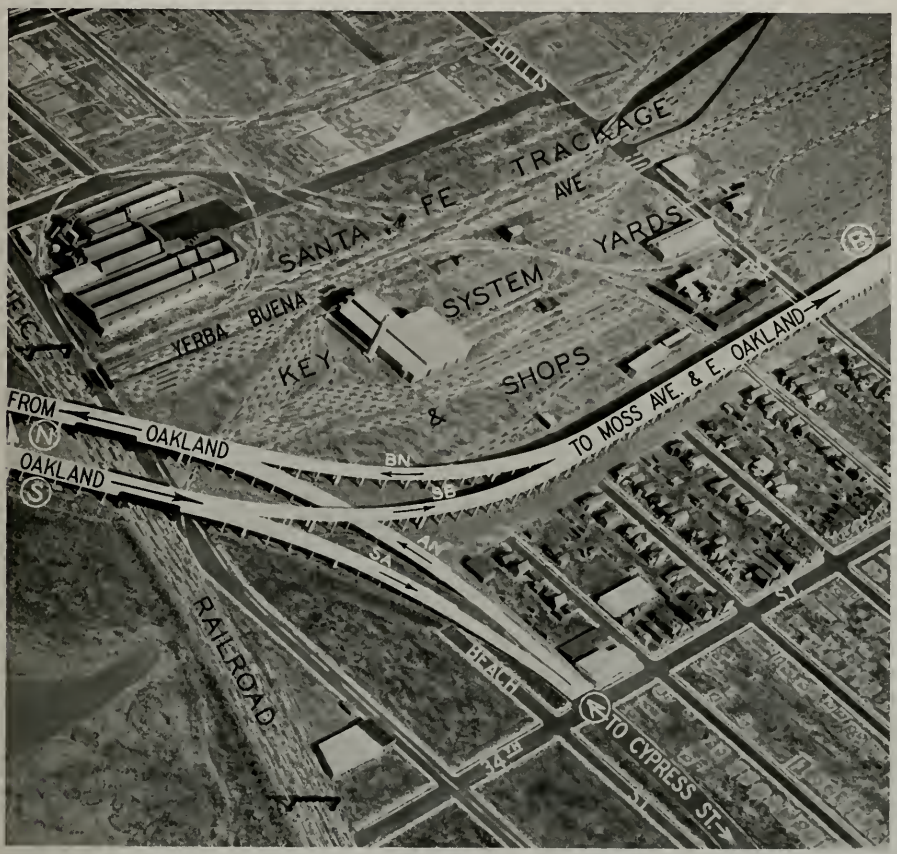
"N"—North twin structure. "S"—South twin structure. "A"—Southerly branch of East Shore Highway. "B"—Central branch approach. "C"—Northerly branch of East Shore Highway. "M"—Mole or main line approach. "AN"—Travel from "A" line to north structure. "SA"—Travel from south structure to "A" line. "SB"—Travel

The guide in this phase of the problem was a detailed origin and destination traffic survey, made under the supervision of Lester S. Ready, consulting engineer, by the California Railroad Commission technical staff, and generally outlined in the Hoover-Young report of August, 1930.

2. So locating the approach arterials that they would ultimately become portions of State highway through routes.

A guide in this phase of the problem was the public demand for an East Shore industrial highway extending between San Jose and Richmond, comparable to the Bayshore Highway now nearing completion between San Jose and San Francisco

Approaches of San Francisco-Oakland Bay Bridge



from south structure to "B" line. "BN"—Travel from "B" line to north structure. "NC"—Travel from north structure to "C" line. "CS"—Travel from "C" line to south structure. "NM"—Travel from north structure to mole approach. "MS"—Travel from mole approach to south structure. "CM"—Travel from "C" line to mole approach. "MC"—Travel from mole approach to "C" line.

on the west side of the bay. There was also public demand for the westerly extension of State highway Route 5 through Oakland, in the general vicinity of Moss Avenue, which had become a commonly used route of travel—not because it was originally planned as such, nor because it was suited for heavy travel, but because of the lack of any traffic artery through this section of Oakland.

After comprehensive economic studies had been made, the official approach system adopted in the East Bay area was the extension easterly as far as 38th and Market Streets of the east and west main bridge approach as a part of State highway Route 5.

and the adoption for immediate construction of the East Shore highway from Seventh and Cypress Streets in Oakland, to and connecting with Ashby Avenue in Berkeley. The "Distribution Structure" is located at the intersection of these two important state highway routes.

In these days of automatic telephones, automatic elevators and escalators, automatic cafeterias, and even automatic traffic signals, an automatic separator, segregator, director, and distributor of motor vehicle traffic has its place in the modern scheme of development of this country.

There have been a number of designs for segregating traffic at intersecting important cross highways, those most commonly known being the traffic circle where the intersecting highways cross at grade, and the cloverleaf, where they cross at separated grades.

The "Distribution Structure" for the East Bay highway approach system to the bridge not only provides highway grade separations for all its cross roadways of highway traffic, but also provides grade separation for the main line steam trains of both the Southern Pacific and Santa Fe railroads, and for the suburban electric lines of both the Southern Pacific Company and the Key System, totaling in all 16 grade separations.

The Key System has, for many years, crossed the Southern Pacific and Santa Fe tracks in this vicinity, by means of a subway, which precluded from the start any serious consideration of a subway design for the "Distribution Structure." It also forced any traffic circle design overhead.

Such a traffic circle design was considered, with approximate inside radius of 200 feet, but the economic time loss in 1940, compared to the present structure, capitalized at 7 per cent, amounted to more than three-fourths of a million dollars, based on an average time value of one cent per vehicle minute, which is a value considerably below that used in similar analyses elsewhere in the country. This figure did not include any capitalized vehicle operating costs, which further favored the present design.

A semi-clover leaf design was also considered, which showed capitalized vehicle operating costs, based on 1940 estimated traffic, of more than one-half million dollars in favor of the present structure, this being exclusive of any time differences, which also favored the design decided upon.

The accompanying photograph of a model, constructed under the supervision of the city engineer of Oakland, Walter Frickstad, shows the design adopted, and clarifies at a glance many of the questions and answers to the numerous phases of this problem.

It will be noted that there are twin structures crossing the numerous railroad tracks in the vicinity, for convenience in analysis designated as "N" (North) and "S" (South). For similar convenience in designation, the southerly branch of the East Shore highway terminating under the official bridge approach system at Seventh and Cypress Streets in Oakland, has been called the "A" line. The Central Branch, terminating at 38th and Market Streets, of the legislative bridge approach system, has been designated the "B" line. The northerly branch of the East Shore highway, officially terminating at Ninth and Ashby in Berkeley, has been called the "C" line, and the main approach to the west has been designated the "M" (mole or main) line.

Combination Markings

For the various connecting roadways of the "Distribution Structure" itself, a combination of two letters indicates both the

roadway and the direction of travel upon that roadway. For example, "AN" indicates the roadway and the direction of travel from the "A' line to the north structure, "SB" the roadway and direction of travel from the south structure to the "B," or central approach line, etc.

A careful analysis of local bridge traffic alone indicates that the "A" line, or southerly approach, will carry approximately 47 per cent, the "B" line, or central approach, approximately 28 per cent, and the "C" line, or northerly approach, 25 per cent of the total bridge traffic. The "M" line naturally carries 100 per cent of this traffic, which has been estimated by Mr. Ready at 10,000,000 vehicles per year, or roughly, 30,000 per day, in 1940.

The preceding figures exclude the local traffic of the East Shore highway, which has been estimated at 10,000 per day in 1940, also a smaller amount of local traffic between the "B" and "C" lines, central and north approaches, respectively.

The north and south twin structures represent the segregating units of distribution, which will be put to the most severe test during the peak hour of travel. All traffic on each of these structures is in the same direction.

Approximately 45 per cent of this traffic will be straight through traffic, and 55 per cent, or 860 vehicles per peak hour, will require segregation in the form of weaving from one inner lane to an adacent inner lane within the 500-foot length of the structure. This hourly rate is equivalent to an average of 14 per minute, which may reach 20 per minute at times during the rush hour.

This means (taking the "S" structure for example) that approximately eleven vehicles from the "C" line destined for the "A" line must segregate themselves with respect to nine vehicles per minute from the "M" line, destined for the "B" line. Diagrams show that with all vehicles moving in the same direction, it will be impossible to cause anything more than a momentary slowing of traffic in the segregating lanes, for far heavier traffic than that anticipated for the year 1940.

Minimum radius curves of 1000 feet, and maximum grades of 4 per cent up and 5 per cent down, have been used in the design.

Detailed structural design and construction is under the supervision of C. E. Andrew, bridge engineer for the San Francisco-Oakland Bay Bridge. General control features of design, as affected by the highway approach requirements to the bridge, are under the jurisdiction of Colonel Jno. H. Skeggs, district engineer, San Francisco.

ESTIMATE OF TRAFFIC

Assuming a return to normal business conditions by 1940, combined bridge and local traffic is approximately estimated on the "Distribution Structure" as follows:

Line	To and From	Ultimate No. of Traffic Lanes	Vehicles per Day	Vehicles Peak Hour
"A"	Downtown Oakland Alameda	6	24,000	2,260
"AN" and "SA"		3	12,000	1,130
"B"	Residential, Oakland, Piedmont, East Oakland	4	9,400	880
"BN" and "SB"		2	4,700	440
"C"	Emeryville, Berkeley, Albany, Richmond	6	18,400	1,730
"NC" and "CS"		3	5,500	520
"CM" and "MC"		3	3,700	350
"M"	San Francisco-Oakland Bay Bridge	10	29,800	2,800
"NM" and "MS"		3	11,200	1,050
"N" and "S"	Twin Structures	5	16,700	1,570

TILED FLOOR LIVING ROOM IN THE PARLEY JOHNSON HOME, DOWNEY, CALIFORNIA
ROLAND E. COATE, ARCHITECT

Survey

● *A. A. Brown Explains Details of Termite Investigation Sponsored by City of San Francisco*

THE termite survey now in progress in San Francisco has quite naturally led to some opposition, mostly on the part of those unfamiliar with actual conditions and modus operandi of officials in charge of the investigation. A publication in the Middle West recently printed a criticism of the survey, which it described in effect as an experimental undertaking by untrained men in need of a job. The article goes on to state that "men working in actual control operations find that a year is not sufficient time to train a man so that he is capable of making recommendations. No dependable operator would send a man of two weeks experience to make an inspection, not if he valued his reputation.

"Why is it that these relief agencies have not sent out dentists and occulists? Certainly the termite man needs as much training and again the termite operator has just as much and varied equipment as either of the other two professions mentioned."

To which A. A. Brown, in charge of the investigation for Mr. Cleary, Chief Administrative officer of the City and County of San Francisco, replies:

"San Francisco has been the headquarters for the Termite Investigations Committee since its organization in 1928. It has been a cooperative enterprise in which business, as represented by major corporations, along with science, as represented by the University of California, has joined in the study of this most difficult problem. These studies have continued for several years and are still in progress. The report of the Termite Investigations Committee was published by the University of California Press in January, 1934, and a revised and enlarged edition was published by the same press in December, 1934. As chairman of the Termite Investigations Committee, the writer is familiar with the depredations of termites in San Francisco, and for more than a quarter of a century has been known personally and professionally to Mr. Cleary.

"Realizing the importance of this subject and the interest and personal knowledge of the situation of the writer in this connection, Mr. Cleary asked that I undertake the

organization of this termite survey, using, so far as possible, S. E. R. A. labor. The project has been organized into three major divisions: One, inspection; two, education and training, and three, tests and investigation.

"Men best qualified by education and experience for this work have been assigned to the division of education and training for a period of instruction. The buildings being demolished to provide space for the construction of approaches to the San Francisco-Oakland Bay Bridge, are being used as a training ground for practical instruction in inspecting buildings and locating termites and termite damage.

"The field observations consume the forenoons. The afternoons are given over to class instruction, the material covered in the forenoon being used as part of the material for the afternoon instruction period. The class book used primarily, is the report of the Termite Investigations Committee entitled *Termites and Termite Control.*

"There are among these men, graduates in forestry from the University of California, men with scientific degrees from the University of Iowa and the Massachusetts Institute of Technology, and many other similar institutions of learning.

"I have from time to time observed comments in the press of the inefficiency of S. E. R. A. workers. I can personally testify from this experience to the fact that these men are displaying an unusual interest in this project, and while they are paid but a few hours of work per week, in most cases they are giving their entire time. They are to be found in the class-room, museum, and reading room in large numbers throughout the entire day. Men who have majored in entomology (one of them holds his doctor's degree in entomology) are conducting classes in biology to provide a general background of knowledge on the subject. As soon as these men have satisfactorily completed their preliminary course of training they will join the division of inspection, where they will be organized into squads of six men, each under a squad captain. Four or five such squads will then be assigned to a district under the supervision of a district inspector to conduct inspections for termites and other wood-destroying organisms.

"As these men are promoted to the division of inspection, others will be inducted into the program of education and training. The duty of these men will be to make inspections, properly filling out the form under supervision, and deliver these reports through their squad captains to the project headquarters. An advanced program of education will be provided for workers during the entire period the project is in operation. These men have nothing whatsoever to do with recommendations to home owners of treatments, nor, as you suggest, will they 'dictate what is to be done.'

"Under the division of tests and investigation, arrangements have been made for any manufacturer, desiring to have his materials used for the purpose of eradication or control of termites or related organisms, to submit his material in form as required by the University of California laboratories, and all such materials will be tested in the biological laboratory of the University of California for their toxic properties. They will also be submitted to the city toxicologist, Professor Frank T. Green, where they will be subjected to tests to determine whether their use will create any health hazard. Still further tests are made on these materials in the city testing laboratory to determine the relative permanence after use, that is, permanence in the presence of heat or moisture; and finally, they

are tested in the laboratory at the termite survey headquarters for their adaptability for use in termite control work. This latter phase is more particularly concerned with the penetrating qualities of any preservative when injected into the wood under pressure.

"Specifications for properly impregnating wood in existing structures with preservatives known to be toxic to termites, which do not create a hazard to health, and which will provide a relatively permanent treatment, will be prepared for use by the office of the superintendent of buildings in properly supervising the repair work shown to be necessary and undertaken by the property owners.

"The purpose of this program is not to make inroads into the work now being done by legitimate experts in the control of termites, but is a constructive attempt to create in the minds of home owners a feeling of confidence that this work will be properly done under competent supervision. Any contractor who can demonstrate by methods and experience his ability to satisfactorily do the work required, should experience no difficulty in obtaining his fair share of the business.

"By establishing a high standard of quality and workmanship, and placing the operations under the supervision of a qualified building department, it is my opinion that not only the public will gain by this undertaking, but also the legitimate members of the building industry engaged in termite control work.

"The San Francisco Termite Survey is a practical application of adult education. These unemployed men are innocent victims of our changing economic order, with no hope, in most instances, of regaining their old jobs. Termite control is a new and necessary addition to the building industry. By training and experience it is hoped that many of these men may be returned to productive industry."

CLIENTS

[Concluded from Page 23]

like but can't have it and finally we're too old to enjoy it, if we're lucky enough to live that long.

I've heard that one can be and can have exactly what he wishes. It seems to be a condition of mind, as it were; so far, I confess, slightly beyond my grasp, although I like to believe there have been momentary states in which everything was just right.

And sometimes living is so keenly painful that I lean over backward and think that Life is just Beautiful; after all, is not pain and pleasure one? And what might that thing called Contentment be? Nice to contemplate, nice to believe in the possibility of its existence.

The draughtsman, when I asked him what his idea of contentment was, replied that it was "a good dinner and a whole flock of beautiful women."

Says the architect: "If I had a flock of beautiful women, I'd have every curve in the world that I'd ever need to draw."

And right now I'm ending the discussion.

STEEL HOUSES

[Concluded from Page 38]

wood as is used has sufficient thickness to prevent rapid combustion.

No special provisions of building ordinances were required to secure a building permit nor were any difficulties encountered in securing a Federal loan to finance the structure.

The contract price for the house was stated, by Unitype Builders, Inc., the engineers and designers of the home, to be only slightly higher than the owner's estimate in wood. Carleton M. Winslow, A. I. A. of Los Angeles, was the consulting architect.

GARDEN VIEW OF LIBRARY WING TO LOS ANGELES RESIDENCE

« « « « With the Architects » » » »

DINWIDDIE A PRIZE WINNER

John Ekin Dinwiddie, architect of San Francisco and Berkeley, won second prize for his small home design submitted in an architectural competition conducted by an electrical company. The financial reward is $1250. This is the second time Mr. Dinwiddie's work has received special recognition. In 1927, when a student in the University of Michigan, he won the George Booth traveling fellowship in national competition. Readers of THE ARCHITECT AND ENGINEER are familiar with some of Mr. Dinwiddie's early work, including a series of cover designs which he made for this magazine several years ago.

MICHAEL GOODMAN MARRIED

Michael B. Goodman, architect, and member of the faculty in the School of Architecture, University of California, was married recently to Miss Mildred Jacobs of San Francisco.

Mr. Goodman has lately had his work accepted for the New York All-American exhibit, "work by well known contemporary artists which best interprets the American scene." He has displayed drawings in Rome, Paris and many places in America.

"PENCIL POINTS" COMPETITION

"Pencil Points" has announced another competition open to the architectural profession in the United States. It is sponsored by the Iron Fireman Manufacturing Company of Portland, Oregon. There will be 29 prizes aggregating $3,100. The jury of award will consist of seven architects of national repute. A copy of the program may be had by addressing the publication.

COURT HOUSE ADDITION

William Mooser, Monadnock Building, San Francisco, has made preliminary drawings for extensive alterations and additions to the court house at Sonora, Tuolumne County.

PERSONAL

JOHN A. BAUER with ARTHUR BROWN, JR., has been notified by the French Government that he is to be made a Chevalier of the Legion of Honor. The investiture was made by the French Consul General at a dinner recently.

WARREN PERRY, director of the School of Architecture, University of California, was one of the speakers at the annual celebration in behalf of the public schools at Los Gatos, April 11.

WILLIS POLK and Company have moved their office to 604 Mission Street, San Francisco.

EDWIN J. PETERSON, who has been with the Bureau of Reclamation at Almira, Washington, and Denver, Colorado, during the past year, has resumed his position with Whitehouse and Price. Mr. Peterson is from Harvard.

CHARLES V. RUEGER, graduate from the Department of Architectural Engineering, State College of Washington, has opened an office for general practice at 249 Tacoma Avenue South, Tacoma.

WALLACE H. HUBBERT, architect, will be pleased to receive catalogs at 510 Bank of America Building, San Diego, California.

J. LISTER HOLMES, architect of Seattle, is chairman of an A.I.A. Committee to handle a prize competition on the design of residences suitable for construction in Broadmoor Residential Park, the prizes being offered by the Puget Mill Company. Other committee members representing the Washington Chapter are George Wellington Stoddard, William J. Bain and Arthur L. Loveless.

JOHN K. DUKEHART, architect, recently joined professional hands with Folger Johnson and C. H. Wallwork to form the firm of Johnson, Wallwork and Dukehart, 422 United States Bank Building, Portland.

MYRON HUNT of Los Angeles has been named chairman of the Los Angeles county governmental simplification committee to succeed Dr. Walter F. Dexter of Whittier, now executive secretary in the governor's office.

INSTITUTE CONVENTION

The Sixty-seventh convention of the American Institute of Architects will be held at the Schroeder Hotel, Milwaukee, Wisconsin, May 28-31. The dates originally announced were one week earlier.

By special arrangement with the management of the Schroeder Hotel, all Institute delegates, members, and guests will be assured of accommodations if their reservations are made direct to the hotel at an early date—*and not later than May 20.* Reservations made after May 20 may be too late to secure the type of accommodations desired.

The report of the board of directors will present a complete summary of Institute affairs for the action of the delegates.

The address of the President, the report of the Treasurer, the report of the Committee on Public Works, the report of the Committee on Education, and the open forum discussions promise to make this convention one of the most stirring in the annals of the Institute.

AUSTIN SPERRY PROMOTED

Austin Sperry's wide circle of friends and acquaintances in the architectural and engineering professions in San Francisco, will be pleased to learn of his recent promotion to the position of assistant manager of the San Francisco branch of Crane Co. Mr. Sperry's many years of loyal service has had its reward—an advancement in line with a long established policy of Crane Co. towards its employees. Mr. Sperry's headquarters will be at the company's general offices and warehouse, 301 Brannan Street, San Francisco. He is succeeded as exhibit room manager at 61 Montgomery Street, opposite the Palace Hotel, by his former assistant, Joseph C. Granville.

BRIDGE ADMINISTRATIVE BUILDING

Glenn B. Woodruff, chief designer for the San Francisco Bay Bridge, is completing plans for a two-story and basement administration building to be built at the east end of the bridge, together with a garage and six toll booths. Entire contract, to be let shortly, will amount to something over $300,000.

CONCRETE GYMNASIUM

Plans have been completed by W. D. Coates, Jr., of Fresno, and F. W. Kellberg, engineer of San Francisco, for a one-story reinforced concrete gymnasium for the Sanger Union High School District.

NEUTRA A PRIZE WINNER

Richard J. Neutra of Los Angeles won a $1250 second prize in the modern electric home competition. Among those who won honorable mentions in the contest were Arthur R. Hutchason, Albert W. Ford, Louis A. Thomas, Howard A. Topp, and Walter L. Moody, all of Los Angeles.

More than 2,000 sets of drawings were submitted in the competition and 52 prizes totaling $21,000 were distributed.

Ralph T. Walker of Voorhees, Gmelin and Walker, New York, was chairman of the jury of awards; Kenneth K. Stowell, A. I. A., and former editor of Architectural Forum, was professional adviser; John F. Quinlan, of General Electric, was manager of the competition. Architects on the jury were: Franklin O. Adams, of Tampa, Fla.; Ernest A. Grunsfeld, Jr., of Chicago; Chas. T. Ingham, of Pittsburgh; H. Roy Kelley of Los Angeles; Chas. W. Killam, of Cambridge, Mass., and Eliel Saarinen, of Bloomfield Hills, Michigan.

ALAMEDA SCHOOL CHANGES

Reconditioning and structural changes of school buildings in Alameda will necessitate an outlay close to $500,000, according to Engineers Nishkian, Hammill & Russell, who have completed a survey at the request of the Board of Education. A bond election probably will be held to finance the improvements. At Redwood City bonds amounting to $75,000 have been voted for structural changes to the Sequoia High School buildings from plans by H. J. Brunnier, structural engineer.

SCHOOL BUILDING AND RANCH HOUSE

Norman D. Sexton, de Young Building, San Francisco, has made plans for a school building to be built in San Rafael. He has also completed drawings and awarded a contract for a $6,000 ranch house on the Spreckels Ranch in Sonoma County.

SAN RAFAEL RESIDENCE

S. Heiman, 605 Market Street, San Francisco, has completed working drawings for a two-story frame residence to be built in San Rafael for Max Blumfield at a cost of $16,000.

TWO SALINAS DWELLINGS

A contract has been awarded by Charles Butner, architect of Salinas, for two $7,000 dwellings for different owners at Salinas.

ADVOCATES TREE PLANTING

The following article on the beautification of some of San Francisco's monumental structures by the judicious planting of trees and shrubs, appeared recently in the McClatchy newspapers, including the Sacramento and Fresno Bee:

"San Francisco clubs, led by a tree-minded architect of national reputation, are setting a notable example in beautifying the city's downtown areas.

"Lewis P. Hobart, the designer of some of the best-known buildings in the West, incorporates trees in his architectural plans, insisting that they be planted around buildings he designs, wherever possible.

"The new $1,000,000 Bohemian Club is the latest Hobart-designed structure which is bordered with trees. Rows of plane trees have been planted along the Taylor and Post Street sides of this handsome club building.

"Hobart explains that 'I want trees around every building I design. Of course, it is not always possible to plant them in the downtown districts. But wherever it can be arranged, my plans call for the planting of as many trees as there is available space. Plane trees seem to me to be the best suited to business districts where sidewalk space is at a premium. That is why plane trees have been planted alongside the Bohemian Club. Shrubs, too, have been planted at the base of two sides of the building, and ivy—to climb the red bricks as it did on the old club.

"The architect expresses the hope that some day all city streets, whether in business or residential areas, will be lined with trees.

"Another structure in which trees are a part of the architectural scheme is the massive Grace Cathedral, under construction on top of Nob Hill. In this case, too, plane trees are being planted along the base of the church.

"The Bohemian Club follows the lead of the Family Club and Pacific Union Club in lining its street frontage with trees. These latter two clubs years ago brightened their neighborhoods by planting borders of trees about their buildings. The San Francisco Stock Exchange, in the heart of the financial district, is another structure which has utilized part of the frontage for the planting of trees."

SEATTLE EXPOSITION

Practically every branch of the home building and furnishing industry in Seattle is actively interested in the plans for the Honeymoon Trail and Home Builders Exposition to be held April 29 to May 5 at the Civic Auditorium, Seattle. The exposition is held in connection with the Five-Year Development Program of the Seattle Chamber of Commerce.

SCHOOL OF ARCHITECTURE

An announcement from New York University reads in part as follows:

"The Council of New York University recently voted to raise the status of the Department of Architecture to that of an independent school, with the same standing in the University as the professional schools of Medicine, Law and Liberal Arts. Professor E. R. Bossange, who, for six years has been dean of the College of Fine Arts and who organized the Department, will be dean of the new School of Architecture and Allied Arts.

"The opportunities offered by new systems of construction and new materials for the solution of present day problems in a more economic and scientific manner require that the student be ever conscious of both structure and materials in solving problems of design. An important course on the esthetic value of building materials added some years ago has greatly stimulated the interest of the students in this phase of the modern movement. These two subjects, structure and materials, have been stressed in all the courses since the inception of the school.

"The modern movement has tended to greatly simplify our architecture. As long as such extremely simple forms and surfaces continue to be used, in order to produce the sympathetic atmosphere human being desire, architects will be required to pay special attention to the design of the contents of the simple spaces. The school recognizes the emphasis thus placed on specially designed furniture, hangings, fittings and all kinds of objects. European architects have been trained to do this for generations and it is increasingly true in the United States. The courses offered in New York University being fundamental in character enable the student to satisfy this modern need. In the first years courses are given in form and color, esthetic character of materials and elements, the broad character of which develop in the students the ability to compose and design in various materials for highly varied applications. . .

"In addition to the usual courses such as design, graphics, construction and practical experience and also preparatory courses for high school

students, the feature of the summer session will be two courses on Modern Housing, under the direction of Dr. Carol Aronovici and with the assistance of practically the same experts who made the winter season memorable, one course to consist of lectures and seminars and the other of planning and design."

ARCHITECTURE AT THE FAIR

A variety of architecture will greet the visitor to the California Pacific International Exposition at San Diego when the great spectacle makes its bow May 29th in 1400 acre Balboa Park.

An interesting era will be represented in the Taos Peublo, replica of America's first apartment dwelling.

The colorful epoch of the Aztecs and Mayas will be suggested by the huge Temple of Sacrifice, seat of human sacrificial rites.

Feudal days of old Nippon will live again in the pavilion and gardens of the Japanese group, with its distinctive architecture of the Mikado's empire.

The gaudy days of '49 will echo in Golden Gulch, startling reproduction of a gold-mining camp. Added realism will be lent by timbers that once were part of original gold-camp shacks.

Magnificent palaces of the Spanish Renaissance will front the Avenue of Palaces, while the chaste columns of a Greek colonnade will be framed against a background of green verdure.

The monastic simplicity of modern architecture will be exemplified in many other exhibit palaces.

Living floral displays, festooned from eaves and high ledges of the buildings' exteriors, will soften the lines of these structures giving an effect of hanging gardens, and adding a note of vivid color to whites and pastels.

Craftsmanship of architect and builder will further be exemplified in Midget City and Midget Farm community of 100 Lilliputians who will be featured at the Exposition. Constructed on doll-house scale, these buildings will include bungalows, hotel, restaurant, gas station, park, grocery and butcher store, and office of the Midget City News, world's smallest newspaper.

NORTH SACRAMENTO CHURCH

Harry J. De Vine, architect of Sacramento, has completed drawings for a one-story reinforced concrete church to be built in North Sacramento for the Roman Catholic Archbishop at an estimated cost of $30,000.

STIMULATE PRIVATE WORK

A most interesting suggestion has been made by Gordon Allen, A.I.A., of the Boston Chapter, as follows:

"An idea has been presented to us that we believe should be of great interest to every one connected directly or indirectly with the construction industry — architects, builders, manufacturers of building materials, skilled and unskilled craftsmen, and those interested in economic recovery.

"The idea is that legislation be passed permitting the deduction from income of all moneys spent on construction either by individuals or corporations before computing Federal income taxes —proper evidence of the expense to accompany returns. To put this plan into effect should be simple and the results would, we believe, be immediate. It would accomplish much that the government is trying to do without the necessary delays attendant on government undertakings. A time limit of three to five years should be provided, perhaps on a sliding scale.

"The loss of income to the government would, we believe, be more than made up by savings in the dole and by increased corporate income taxes. Towns would benefit from increased taxes. No delays or confusion would be present over land values.

"Only to the extent that the plan succeeds would the government lose income and to the extent of its success its expenses would be lessened and its income from corporate taxes increased.

"It may interest you to know that this plan has been considered and approved by Mr. Stuart Chase, an acknowledged authority on economics." —*The Octagon.*

TWO EAST BAY HOUSES

Plans for two houses to be built in the East Bay section have been completed by W. W. Wurster, 260 California Street, San Francisco. One of the houses will be built in Lakeshore Highlands for F. A. Naylor and the other in Claremont District, Berkeley, for Mr. and Mrs. M. P. Whitney.

HAYWARD MUNICIPAL BATH HOUSE

James T. Narbett & George Simonds, associated, have completed working drawings for a reinforced concrete municipal bath house at Hayward. Estimated cost, $70,000. Leland & Haley, of San Francisco, are the mechanical engineers.

Chapter and Club Meetings

NORTHERN CALIFORNIA CHAPTER

The monthly meeting of the American Institute of Architects, Northern California Chapter, was held at the Plaza Hotel, San Francisco, at 6:30 P.M., February 26, Albert J. Evers presiding.

The action of the Chapter in the investigation of methods and conduct of sub-bidders in the different trades, particularly the electrical, was discussed. Mr. Jorgensen's motion to refer the matter to local code authority pending response of the Federal code authority, failed to carry.

Mr. Wurster told of plans which the exhibit committee have made for the coming Honor Award Exhibit. It was recommended that the April meeting be supplanted by a joint meeting with the State Association the first week of May, for a preview of the exhibit which will be held in conjunction with the Building Exposition and Convention. Messrs. Garren, Allen and Wurster were appointed as a committee to promote plans for the meeting and present a report to the board of directors.

Mr. Garren, speaking for the legislation committee of the State Association, reported on pending legislation affecting the profession.

Mr. Hyman reported on the agreement between the architects of San Francisco schools and their engineers in the matter of fees for engineering services. The need of a statewide understanding of fees, particularly for public work, was stressed. The discussion that followed lead to the instruction to the committee on practice to confer with Southern California Chapter on the matter.

Mr. Morrow reported that the San Francisco propriate gesture to invite members of the newly organized California Society of Mural Artists to a future meeting of the Chapter. His motion to this effect was passed unanimously.

Mr. Morrow reported that the San Francisco Federation of Arts had recently protested the selection of color for the San Francisco - Oakland Bay Bridge and called upon the California Toll Bridge Authority to seek and follow the opinion of its Board of Consulting Architects. His motion that the Chapter make similar protest was unanimously carried with amendment by Mr. Allen that the letter be released to the press.

The sum of $10 was contributed to the California Roadside Council fund to defray expense of protecting its interests in connection with legislative matters.

The program of the evening was devoted to City Planning and Zoning. The Chapter was particularly fortunate in having as its guest speaker, Hugh R. Pomeroy, who is a nationally distinguished leader in this profession.

In the course of his talk, city planning was pointed to as an outgrowth of early city zoning, in which planned arrangement for guiding the development of cities became a necessity with rapidly changing conditions of living. He included a very interesting account of its growth, particularly in our own state where it is becoming a dominant factor in county and city development, and, at the moment, a required qualification of property for underwriting by the Federal Housing Administration. Mr. Pomeroy's position as Planning Adviser to San Mateo, and other counties, enabled him to state, with accuracy, the steps being taken to effect adequate control in these sections.—J.H.M.

March Meeting

The regular March meeting of the Chapter was held at the Plaza Hotel, San Francisco, at 6:30 P. M., March 26.

The minutes of the February meeting were approved as published.

Mr. Ballantine, chairman of the exhibit committee, reported on the arrangements which are being made for the Biennial Honor Award Exhibit. All members were urged to participate.

Mr. Allen reported on plans for a joint meeting with the State Association at the time of the exhibit and moved that such joint meeting be held on May 4th in place of the regular April meeting. The motion was unanimously carried.

Howard Moise was selected as delegate to the 67th Institute convention to be held in Milwaukee, May 27-31. In keeping with the custom

the other members of the Chapter were elected as alternates.

The meeting was designated as an occasion to extend greetings to the newly organized California Society of Mural Artists and many of its members were present in response to the invitation to meet with the Chapter.

Albert Barrows, president of the Society, replied to the welcome expressed in behalf of the Chapter by Mr. Corlett and Mr. Perry.

His remarks dwelt upon the use of fresco painting and sculpture as mural decorations and the opportunity afforded through their revival for greater collaboration between architect and artists. The cooperation of the artists was pledged with hearty enthusiasm.

Others who spoke in this light or pointed to these forms of decoration as appropriate to modern design were Messrs. Worth Ryder, Ray Boynton, Jacques Schneier and Ray Strong. A display of recent mural decoration in this vicinity brought the meeting to a pleasant ending.—J.H.M.

SOUTHERN CALIFORNIA CHAPTER

The March 12th meeting of the Southern California Chapter, A. I. A., was devoted largely to a discussion of amendments to by-laws dealing principally with finances. The three amendments adopted are:

ARTICLE VI, Section 8—Add new paragraph No. 2, to read as follows:

During any year that a financial emergency exists, in accordance with Article VI, Section 3, and on account of which Chapter dues have been reduced, the treasurer shall set aside from the annual dues collected a proportion of not more than one-half nor less than one-fourth of said annual dues, as determined by resolution of the executive committee. This portion of dues set aside shall constitute a special fund to defray in part or in whole the expenses of delegates of the Chapter to conventions of the American Institute of Architects, and the funds thus set aside shall be used for no other purpose; providing, however, that disbursements may be made from this fund for other purposes only by the methods stipulated in Article VI, Section 8, Paragraph 1.

ARTICLE VI, Section 9—Add new paragraph No. 3, to read as follows:

The executive committee, during any year that a financial emergency exists, according to Article VI, Section 3, and on account of which Chapter dues have been reduced may, by resolution, expend the interest on this fund for general Chapter expenses.

New Article XI, to read as follows:

Amendment: These by-laws may be amended at any meeting of the Chapter called for that purpose, provided that a copy of the proposed amendments and a notice of the meeting at which the amendments are to be voted upon shall have been mailed by the secretary of the Chapter to every member of the Chapter at his last known address, at least 20 days before the date of said meeting, by the vote in person of two-thirds of the members of the Chapter entitled to vote; provided, however, that any amendment so enacted shall not become effective until approved by the board of directors of the American Institute of Architects.

H. C. Chambers, president of the State Association of California Architects, and Robert H. Orr, treasurer of the association, gave brief reports of the association meeting held in Los Angeles.

David J. Witmer, chief architectural supervisor for the National Housing Administration, Southern California district, announced a program whereby architects will be invited by the government to submit drawings, including four elevations and a floor plan, for 40 houses to be erected at the California Pacific International Exposition in San Diego this spring. There will be no fee paid for the service but architects whose plans are used will be given credit for their work in the form of placards displayed on the buildings. It is planned to build the houses on small scale, about one-half of full size, and to leave the interiors unfinished.

ARCHITECTS VISIT OREGON SCHOOL

Having as an object the exchange of ideas and bringing practicing architects into closer contact with the School of Architecture and allied arts of the University of Oregon, arrangements have been made for a visit to Eugene each school term by delegates from Oregon Chapter, American Institute of Architects.

Fred Aandahl, chapter president, and Ernest Tucker, member of the committee on education, have just returned from one of these visits. They report that the Oregon school is using the most advanced methods of education and in several instances has taken national leadership in adapting instruction to modern needs.

Ellis F. Lawrence is dean of the school and W. R. B. Willcox is in charge of the teaching of architectural design. Much credit should be given this department for the courage shown some years ago by eliminating old established, but uninspiring methods of instruction. Architectural design is an art and consequently can not be taught like an exact science. The student must

be given ample opportunity to develop imagination and originality, as well as skill. The former custom of the endless tracing and copying of older work did develop skill but sadly hampered initiative and inspiration.

It was also found that the students have very close contact with the finer crafts, as well as with painting and sculpture.

It is hoped that some kind of combination museum, show room and work shop can be established with all kinds of building materials, both old and new. The cost should not be large and the material and samples could be donated by various material dealers.

Arrangements are now being made by A. Glenn Stanton, chairman of the committee on education to entertain a group of advanced students who will visit Portland the end of the month. Calls will be made at architect's offices to study drawings in their various stages of development and a number of buildings will also be inspected.

WASHINGTON STATE CHAPTER

About forty members of the Washington State Chapter, A.I.A., partook of a Chinese feast at the monthly dinner meeting Thursday evening, March 7, at the King Fur Cafe, Seattle. Lew C. Kay, vice-consul representing the Republic of China at Seattle, gave an interesting talk on "China, Old and New." The program was arranged by Sam Chinn, architectural draftsman in the office of Thomas, Grainger and Thomas.

Frank Branch Riley, regional speaker for the Federal Housing Administration, explained several phases of the Federal Housing program, which was followed by a general discussion of the Seattle Home Building Exposition to be held at the Civic Auditorium. President Robert F. McClelland directed the proceedings.

SPOKANE SOCIETY OF ARCHITECTS

Julius Zittel has been re-elected president of the Spokane Society of Architects. Other officers are: Noel E. Thompson, first vice-president; Henry Bertlesen, second vice-president; Charles I. Carpenter, secretary-treasurer. Mr. Zittel has served as president for the past 3½ years. Ogden F. Beeman, who has been the secretary-treasurer, will devote all of his time to valuation work for the Washington Water Power Company.

Otto Myer gave a talk on his "Fireplace Furnace" at the meeting of the Spokane Society on February 1. This address was in line with a policy whereby material men are presenting their various products.

Spokane architects have passed a resolution stating that all architectural services rendered will be charged at professional rates in the Federal Housing Administration program.

SPRING GARDEN SHOW

The California Spring Garden Show, held in the Oakland Exposition Building, April 4-7, was the most successful yet held under the present management. The attendance outnumbered previous shows by many thousand.

The Manor gardens of England were the theme about which the exposition was planned. Henry H. Gutterson designed the lovely Georgian house and Butler S. Sturtevant was largely responsible for the landscaping. Mrs. Winifield Gray Wise supervised the interior decoration of the Manor house which formed the background for the landscape gardening.

One of the striking floral notes in the garden show was the tulip panel, containing some 6000 tulips, ranging in color from pale pastels to deep and vivid hues. Border plants of violas, pansies, schizanthus and other spring blooms accentuated the length of this magic carpet of tulips.

Other features of the show were arched rose walks and ivy-grown terraces, long flower borders, panels of vari-colored tulips, flowering trees and quaint clipped hedges, a profusion of exotic orchids and other rare blooms.

A collection of wild flowers was the San Francisco Garden Club's contribution to the show.

Hillsborough Garden Club and other Peninsula groups exhibited "shadow boxes," in which flower arrangements were shown in silhouette.

Hothouse plants were exhibited by private estate owners, including the Edward M. Walshes, the Wallace M. Alexanders, the E. W. Ehrmans and others who have lovely gardens in the Bay district.

Abe P. Leach officiated as president of the 1935 show.

HEATING ENGINEERS TO MEET

The Fourth International Heating and Ventilating Exposition will be held in Chicago, at the new International Amphitheater, January 27-31, 1936. Since its inception in 1930 the Heating and Ventilating Exposition has been held every two years. The first showing was in Philadelphia, the second in Cleveland, the third which took place in 1934, was held in New York City. Each successive exposition has been increasingly beneficial to the participants.

Significant this year to prospective exhibitors who are now reserving space is the growing national demand for modern heating and ventilating equipment. The vital problem of healthful living indoors at all seasons now extends from the towering office building, the department store and factory plant to the most modest dwelling. Remarkable developments and innovations in many types of air conditioning apparatus during

the past few years are partly responsible for widespread manifestations of consumer interest. Realization of the benefits and comfort of correct air conditioning of homes and work places, with respect to temperature and humidity, is the forerunner of a boom market for the machines which can do the work at reasonable initial and operating costs. The economy, efficiency, and simplicity, characteristic of the latest devices, has already stimulated and increased the desire of the public generally.

BILLS AFFECTING ENGINEERS

A resume of bills introduced in the California Legislature affecting engineers, is given in the Registered Civil Engineer, news bulletin of the State Board of Registration for Civil Engineers, for April.

"One of the outstanding measures," the bulletin states, "was introduced by Senator Fletcher, San Diego, which would register mining engineers and assayers, and another of equal importance is Assembly Bill 1668, which prohibits registered civil engineers, licensed land surveyors or certified architects regularly employed by the state, city or county, from engaging in private practice. Of particular interest to licensed land surveyors and engineers engaged in land surveying is Assembly Bill 1314 which amends the land surveyors act. The measure endeavors to clarify the section dealing with filing of record maps and permanent monuments. This bill is sponsored by the Association of Land Surveyors of Los Angeles County. The resume follows:

"Assembly Bill 436, introduced by Mr. O'Donnell, amends the Civil Engineers Act to include state, county and city engineers, and to make it a misdemeanor for a registered civil engineer to aid or abet any person in the violation of the Civil Engineers Act. The intent of the Legislature when the law was passed in 1929 was to include all engineers practicing in the state. The attorney general holds, however, that a state, county or city engineer is a public officer, and by strict interpretation, considering other statutory provisions, might be exempt unless specifically mentioned in the engineers' law.

"Assembly Bill 589, introduced by Mr. Kallam, is a new real estate subdivision and map act. It repeals all acts in conflict therewith; provides that a city or county, by ordinance, may define a subdivision; sets forth procedure for making subdivision surveys, maps, etc.; and provides that surveys and record maps must be made by a registered civil engineer or licensed surveyor.

"Assembly Bill 978, introduced by Mr. Redwine, amends the Civil Engineers Act to provide that the Board of Registration for Civil Engineers, may of its own motion initiate proceedings for the suspension or revocation of certificates.

"Assembly Bill 979, introduced by Mr. Redwine (by request), is a new act providing for registration of professional engineers. This is a skeleton bill.

"Assembly Bill 1314, introduced by Mr. Cunningham, amends the licensed land surveyors law. A new definition for land surveying is written; the method of and requirements for filing maps has been revised; the term 'permanent monuments' has been changed to 'durable monuments,' and other minor changes have been made in the act.

"Assembly Bill 1475, introduced by Mr. Clark, is a new act which makes it a misdemeanor for any building inspector to approve plans or issue a permit for the construction of a building if such plans were made by a person violating the architects or civil engineers acts. The inspector is empowered to demand evidence that no violation has been committed.

"Assembly Bill 1668, introduced by Mr. Cunningham, prohibits certified architects, registered civil engineers or licensed land surveyors regularly employed by the state, county, city or political subdivision, from engaging in private practice. The penalty is suspension or revocation of certificate.

"Assembly Bill 2208, introduced by Mr. Clark, is a new act requiring marine architects to be certified as such. This is a skeleton bill.

"Senate Bill 242, introduced by Senator Fletcher, provides for registration of mining engineers and assayers. A board of three members is created; mining engineering and assaying is defined; prerequisites for a method of registration is set forth; the law becomes effective six months after passage. This bill, except that it registers mining engineers and assayers, is in general identical with the civil engineers act, there being only one or two minor differences.

"Senate Bill 507, introduced by Senator Pierovich (by request), amends the Architects Act. The amendment deletes that portion of section 5 of the present law which provides that any one may practice architecture, provided notice has been given in writing, in advance, that the person so practicing is not an architect. It exempts a structural engineer who has been determined by the State Board of Registration for Civil Engineers to be qualified to design buildings. New definitions are written into the law.

"Senate Bill 935, introduced by Senator Olson, is a skeleton bill proposing to amend section 13 of the Civil Engineers Act, relating to reinstate-

ment of expired certificates. Until the amendment is submitted to the Committee on Governmental Efficiency it will not be known what the amendment proposes to accomplish.

"The above digest is submitted as information only, and it is not to be construed as an argument for or against any bill."

PACIFIC COAST MEN OUT

Ninety-four students representing twenty-two colleges in the United States participated in the seventh annual students' bridge design competition of the American Institute of Steel Construction. A jury of nationally-known engineers and architects has selected the ten best from the preliminary drawings for entry into the final judging to be held May 1.

The ten selected to submit final renderings are: Paul O. Deragon, Henry Harold Wiss and George M. Dabbs of Rensselaer Polytechnic Institute, Troy, N. Y.; Albert J. Sailer and Fred A. Thompson of Iowa State College; Alexander Matthews, Jr. of Yale School of Engineering; David Hiat of New York University; Jerome Raphael of Massachusetts Institute of Technology; Walter Jacobsen of Montana State College, and Gene J. Mackey, Jr., of Carnegie Institute of Technology.

From these ten, on May 1, the jury will select a prize winner who will be awarded $100 in cash. There will be a second prize of $50, and certificates of merit will be given those winning third and fourth and fifth places.

The subject of the competitive design was a steel grade crossing elimination bridge that carries a highway over a railroad and another highway parallel to the railroad.

HOTEL ALTERATIONS

Alterations are under way to the Sir Francis Drake Hotel, San Francisco, from plans by Douglas D. Stone. A new bar is included in the improvements. Lindgren & Swinerton, Inc., are the contractors.

BRICK HOSPITAL ADDITION

A twelve-bed addition to the Memorial Hospital at Healdsburg is to be built at once, from plans by John I. Easterly. Building will be of brick construction and will cost $12,000.

RESIDENCE WORK

Messrs. Farr & Ward, 68 Post Street, San Francisco, have recently awarded two residence contracts, one for a $5,000 house in Piedmont for W. C. Cavalier, and the other in Los Altos for Peter L. Skov.

EARLY CALIFORNIA RESIDENCE

Working drawings are being prepared by H. A. Schary, 605 Market Street, San Francisco, for a $10,000 early California residence to be built in Wildwood Gardens, Oakland.

OFFICE BUILDING ALTERATIONS

Extensive alterations are being made to the office at 251 Post Street, San Francisco, from plans by Hyman & Appleton. The Dinwiddie Construction Company are in charge of the work.

YOLO COUNTY DWELLINGS

W. R. Yelland is completing working drawings for a dwelling in Clarksburg, Yolo County, for J. A. Rankin. The same architect has completed plans and awarded a contract for alterations to a Clay Street residence in San Francisco.

OROVILLE COURT HOUSE

Additions are planned to the Oroville, Butte County, court house, including a thirty-foot wing, from plans by George C. Sellon, California State Life Building, Sacramento.

STONE MONUMENT

A monument in memory of the California Portuguese is to be built at Point Pinos, Monterey. Preliminary plans have been made by G. A. Applegarth.

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Unquestionably, the most valuable feature of the book is the complete set of tables, which covers all phases of estimating in the entire structural field. In the computations of many estimates, for example, flexibility is gained by using a flat rate unit per hour, based on one dollar per hour for mechanics and sixty cents per hour for laborers. Thus, by using this basis the carpenter or builder may readily adopt the tables to any local rate. Considerable attention is given all through the book to the time required to install materials, and this is so arranged that any rate of wages may be applied.

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Giving Cost of Building Materials, Wage Scale, Etc.

Owing to the various crafts accepting the NRA code of fair competition, in some cases they have adopted a schedule of prices, and it therefore would be advisable to get in touch with these firms direct.
Amounts quoted are figuring prices and are made up from average quotations furnished by material houses to three leading contracting firms of San Francisco.

NOTE—Add 2½% Sale Tax on all materials but not labor. Lumber prices slightly lower.

All prices and wages quoted are for San Francisco and the Bay District. There may be slight fluctuation of prices in the interior and southern part of the state. Freight cartage, at least, must be added in figuring country work.

Bond—1½% amount of contract.

Brickwork—
Common, $35 to $40 per 1000 laid, (according to class of work).
Face, $75 to $90 per 1000 laid, according to class of work).
Brick Steps, using pressed brick, $1.10 lin. ft.
Brick Walls, using pressed brick on edge, 60c sq. ft. (Foundations extra.)
Brick Veneer on frame buildings, $.75 sq. ft.
Common, f. o. b. cars, $15.00 job cartage.
Face, f.o.b. cars, $45.00 to $50.00 per 1000, carload lots.

HOLLOW TILE FIREPROOFING (f.o.b. job)

3x12x12 in.	$ 84.00 per M
4x12x12 in.	94.50 per M
6x12x12 in.	126.00 per M
8x12x12 in.	225.00 per M

HOLLOW BUILDING TILE (f.o.b. job) carload lots).

8x12x5½	$ 94.50
6x12x5 ½	73.50

Discount 5%.

Composition Floors — 18c to 35c per sq. ft. In large quantities, 16c per sq. ft. laid.
Mosaic Floors—80c per sq. ft.
Duraflex Floor—23c to 30c sq. ft.
Rubber Tile—50c per sq. ft.
Terazzo Floors—45c to 60c per sq. ft.
Terazzo Steps—$1.60 lin. ft.

Concrete Work (material at San Francisco bunkers) — Quotations below 2000 lbs. to the ton. $2.00 delivered.

No. 3 rock, at bunkers	$1.65 per ton
No. 4 rock, at bunkers	1.65 per ton
Elliott top gravel, at bnkrs.	1.75 per ton
Washed gravel, at bunkrs	1.75 per ton
Elliott top gravel, at bnkrs.	1.75 per ton
City gravel, at bunkers	1.40 per ton
River sand, at bunkers	1.50 per ton
Delivered bank sand	120 cu. yd.

Note—Above prices are subject to discount of 10c per ton on invoices paid on or before the 15th of month following delivery.

SAND
Del Monte, $1.75 to $3.00 per ton.
Fan Shell Beach (car lots, f. o. b. Lake Majella), $2.75 to $4.00 per ton.
Cement, $2.25 per bbl. in paper sks.
Cement (f.o.b.) Job. S.F.) $2.90 per bbl.
Cement (f.o.b. Job, Oak.) $2.90 per bbl.
Rebate of 10 cents bbl. cash in 15 days.
Calaveras White . . . $6.00 per bbl.
Medusa White . . . . . $8.00 per bbl.
Forms, Labors average 25.00 per M
Average cost of concrete in place, exclusive of forms, 30c per cu. ft.
4-inch concrete basement floor.....12½c to 14c per sq. ft.
4½ inch Concrete Basement floor .....14½c to 16c per sq. ft.
2-inch rat-proofing....6½c per sq. ft.
Concrete Steps ..... $1.25 per lin. ft.

Dampproofing and Waterproofing—
Two-coat work, 15c per yard.
Membrane waterproofing—4 layers of saturated felt, $4.00 per square.
Hot coating work, $1.80 per square.
Meduca Waterproofing, 15c per lb., San Francisco Warehouse.

Electric Wiring—$12.00 to $15.00 per outlet for conduit work (including switches).
Knob and tube average $7.00 per outlet, including switches.

Elevators—
Prices vary according to capacity, speed and type. Consult elevator companies. Average cost of installing an automatic elevator in four-story building, $2800; direct automatic, about $2700.

Excavation—
Sand, 50 cents; clay or shale, 80c per yard.
Teams, $10.00 per day.
Trucks, $18 to $25 per day.
Above figures are an average without water. Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

Fire Escapes—
Ten-foot balcony, with stairs, $75.00 per balcony, average.

Glass (consult with manufacturers)—
Double strength window glass. 15c per square foot.
Quartz Lite, 50c per square foot.
Plate 75c per square foot.
Art, $1.00 up per square foot.
Wire (for skylights), 35c per sq. foot.
Obscure glass, 26c square foot.
Note—Add extra for setting.

Heating—
Average, $1.90 per sq. ft. of radiation, according to conditions.

Iron—Cost of ornamental iron, cast iron, etc., depends on designs.

Lumber (prices delivered to bldg. site)

No. 1 common	$33.00 per M
No. 2 common	27.00 per M
Selection O. P. common	37.00 per M
2x4 No. 3 form lumber	17.00 per M
1x4 No. 2 flooring VG	48.00 per M
1x4 No. 3 flooring VG	42.00 per M
1x6 No. 2 flooring VG	48.00 per M
1¼x4 and 6, No. 2 flooring	52.00 per M

Slash grain—

1x4 No. 2 flooring	$39.00 per M
1x4 No. 3 flooring	34.00 per M
No. 1 common run T. & G.	30.00 per M
Lath	5.00 per M

Shingles (add cartage to prices quoted)—

Redwood, No. 1	$ 1.00 per bdle.
Redwood, No. 2	.80 per bdle.
Red Cedar	.95 per bdle.

Hardwood Flooring (delivered to building)—

13-16x3¼" T & G Maple	$120.00 M ft.
1 1-16x2¼" T & G Maple	132.00 M ft.
⅞x3½ sq. edge Maple	140.00 M ft.

	13-16x2¼" T&G	⅝x2" T&G	5-16x2" Sq.Ed.
Clr. Qtd. Oak	$200.00 M	$150.00 M	$180 M
Sel. Qtd. Oak	140.00 M	120.00 M	136 M
Clr. Pla. Oak	135.00 M	107.00 M	120 M
Sel. Pla. Oak	120.00 M	88.00 M	107 M
Clear Maple	140.00 M	100.00 M	

Laying & Finishing 13c ft. 11 ft. 10 ft.
Wage—Floor layers, $7.50 per day.

Building Paper—

1 ply per 1000 ft. roll	$3.50
2 ply per 1000 ft. roll	5.00
3 ply per 1000 ft. roll	6.25
Brownskin, 500 ft. roll	4.20
Pro-tect-o-mat, 1000 ft. roll	12.00
Sisalkraft, 500 ft. roll	5.00
Sash cord com. No. 7	$1.20 per 100 ft.
Sash cord com. No. 8	1.50 per 100 ft.
Sash cord spot No. 7	1.90 per 100 ft.
Sash cord spot No. 8	2.25 per 100 ft.

Sash weights cast iron, $50.00 ton
Nails, $3.50 base.
Sash weights, $45 per ton.

Millwork—
O. P. $100.00 per 1000. R. W., $106.00 per 1000 (delivered).
Double hung box window frames, average, with trim, $6.50 and up, each.
Doors, including trim (single panel, 1¾ in. Oregon pine) $8.00 and up, each.
Doors, including trim (five panel, 1¾ in. Oregon pine) $6.50 each.
Screen doors, $4.00 each.
Patent screen windows, 25c a sq. ft.
Cases for kitchen pantries seven ft. high, per lineal ft., $6.50 each.
Dining room cases, $7.00 per lineal foot.
Labor—Rough carpentry, warehouse heavy framing (average), $12.00 per M.
For smaller work average, $27.50 to $35.00 per 1000.

Marble—(See Dealers)

Painting—

Two-coat work ..... 29c per yard
Three-coat work .....40c per yard
Cold Water Painting .....10c per yard
Whitewashing ..... 4c per yard
Turpentine, 80c per gal., in cans and 75c per gal. in drums.
Raw Linseed Oil—80c gal. in bbls.
Boiled Linseed Oil—85c gal. in bbls.
Medusa Portland Cement Paint, 20c per lb.

Carter or Dutch Boy White Lead in Oil (in steel kegs).

Per Lb.
1 ton lots, 100 lbs. net weight 10¾c
500 lb. and less than 1 ton lots 11c
Less than 500 lb. lots.....11½c

Dutch Boy Dry Red Lead and Litharge (in steel kegs).

1 ton lots, 100 lb. kegs, net wt. 10¾c
500 lb. and less than 1 ton lots 11c
Less than 500 lb. lots.....11½c

Red Lead in Oil (in steel kegs)

1 ton lots, 100 lb. keg s,net. wt. 12½c
500 lb. and less than 1 ton lots 12½c
Less than 500 lb. lots.....13c
Note—Accessibility and conditions cause wide variance of costs.

Patent Chimneys—

6-inch	$1.00	lineal foot
8-inch	1.50	lineal foot
10-inch	1.75	lineal foot
12-inch	2.00	lineal foot

Plastering—Interior—

	Yard
1 coat, brown mortar only, wood lath	$0.60
2 coats, lime mortar hard finish, wood lath	.70
2 coats, hard wall plaster, wood lath	$ .80
3 coats, metal lath and plaster	1.25
Keene cement on metal lath	1.30
Ceilings with ¾ hot roll channels metal lath	.75
Ceilings with ¾ hot roll channels metal lath plastered	1.50
Shingle partition ¾ channel lath 1 side	.85
Single partition ¾ channel lath 2 sides 2 inches thick	2.75
4-inch double partition ¾ channel lath 2 sides	1.30
4-inch double partition ¾ channel lath 2 sides plastered	3.00

Plastering—Exterior—

	Yard
2 coats cement finish, brick or concrete wall	$1.10
2 coats Atlas cement, brick or concrete wall	1.35
3 coats cement finish No. 18 gauge wire mesh	1.50
3 coats Medusa finish No. 18 gauge wire mesh	2.00
Wood lath, $5.50 per 1000.	
2.5-lb. metal lath (dipped)	.17
2.5-lb. metal lath (galvanized)	.20
3.4-lb. metal lath (dipped)	.22
3.4-lb. metal lath (galvanized)	.28

¾-inch hot roll channels, $72 per ton.
Finish plaster, $18.90 ton; in paper sacks, Dealer's commission, $1.00 off above quotations.
$13.85 (rebate 10c sack).
Lime, f.o.b. warehouse, $2.25bbl.; cars, $2.15
Lime, bulk (on 2000 lbs.), $16.00 ton.
Wall Board 6 ply, $50.00 per M.
Hydrate Lime, $19.60 ton.
Plasterers Wage Scale .....$1.25 per hour
Lathers Wage Scale ..... 1.25 per hour
Hod Carriers Wage Scale ..... 1.10 per hour

Composition Stucco—$1.60 to $2.00 sq. yard (applied).

Plumbing—

From $65.00 per fixture up, according to grade, quantity and runs.

Roofing—

"Standard" tar and gravel, $6.00 per sq. for 30 sqs. or over.
Less than 30 sqs. $6.50 per sq.
Tile, $20.00 to $35.00 per square.
Redwood Shingles, $11.00 per square in place.
Cedar Shingles, $10 sq. in place.
Recoat, with Gravel, $3.00 per sq
Slate, from $25.00 to $60.00 per sq. laid, according to color and thickness.

Sheet Metal—

Windows—Metal, $2.00 a sq. foot.
Fire doors (average), including hardware, $2.00 per sq. ft.

Skylights—

Copper, 90c sq. ft. (not glazed).
Galvanized iron, 25c sq. ft. (not glazed).

Steel—Structural

$100 ton (erected), this quotation is an average for comparatively small quantities. Light truss work higher. Plain beams and column work in large quantities $80 to $90 per ton cost of steel; average building, $89.00.

Steel Reinforcing—

$85.00 per ton, set, (average).

Stone—

Granite, average, $6.50 cu. foot in place.
Sandstone, average Blue, $4.00, Boise, $3.00 sq. ft. in place.
Indiana Limestone, $2.80 per sq. ft. in place.

Store Fronts—

Copper sash bars for store fronts, corner, center and around sides, will average 75c per lineal foot.
Note—Consult with agents.

Tile — Floor, Wainscot, Etc. — (See Dealers).

SAN FRANCISCO BUILDING TRADES WAGE SCALE

Established by The Impartial Wage Board November 9, 1932. Effective on all work January 1, 1933, to remain in effect until June 30, 1933, and for so long thereafter as economic conditions remain substantially unchanged.

This scale is based on an eight-hour day and is to be considered as a minimum and employees of superior skill and craft knowledge may be paid in excess of the amounts set forth herein.

CRAFT	Journeyman Mechanics
Asbestor Workers	$6.40
Bricklayers	9.00
Bricklayers' Hodcarriers	5.60
Cabinet Workers (Outside)	7.20*
Caisson Workers (Open) Water Work	8.00
Carpenters	7.20*
Cement Finishers	7.20
Cork Insulation Workers	7.20
Elertrical Workers	8.00
Electrical Fixture Hangers	7.00
Elevator Constructors	8.68
Elevator Constructors' Helpers	6.08
Engineers, Portable and Hoisting	8.00
Glass Workers (All Classifications)	6.80
Hardwood Floormen	7.20*
Housemovers	6.40
Housesmiths, Architectural Iron (Outside)	7.20
Housesmiths, Reinforced Concrete, or Rodmen	7.20
Iron Workers (Bridge and Structural)	9.60
Iron Workers (Hoisting Engineers)	10.00
Laborers (6-day week)	5.00
Lathers, Channel Iron	8.00
Lathers, All Other	6.80
Marble Setters	8.00
Marble Setters' Helpers	5.00
Millwrights	7.20*
Mosaic and Terrazzo Workers (Outside)	7.20
Mosaic and Terrazzo Helpers	5.00
Painters	7.00
Painters, Varnishers and Polishers (Outside)	7.00
Pile Drivers and Wharf Builders	$ 8.00
Pile Drivers Engineers	9.00
Plasters and Hodcarriers (See wage srale under Plastering).	
Plumbers	8.00
Roofers (All classifications)	6.40
Sheet Metal Workers	7.20
Sprinkler Fitters	9.00
Steam Fitters	8.00
Stair Builders	7.20*
Stone Cutters, Soft and Granite	6.80
Stone Setters, Soft and Granite	8.00
Stone Derrickmen	7.20
Tile Setters	8.00
Tile Setters' Helpers	5.00
Tile, Cork and Rubber	7.20
Welders, Structural Steel Frame on Buildings	9.60
Welders, All Others on Buildings	8.00
Auto Truck Drivers—Less than 2,500 lbs.	5.50
Auto Truck Drivers—2,500 lbs. to 4,500 lbs.	6.00
Auto Truck Drivers—4,500 lbs. to 6,500 lbs.	6.50
Auto Truck Drivers—6,500 lbs. and over	7.00
General Teamsters, 1 Horse	5.50
General Teamsters, 2 Horses	6.00
General Teamsters, 4 Horses	6.50
Plow Teamsters, 4 Horses	6.50
Scraper Teamsters, 2 Horses	6.00
Scraper Teamsters, 4 Horses	6.00

*Established by Special Board

GENERAL WORKING CONDITIONS

1. Eight hours shall constitute a day's work for all crafts, except as otherwise noted.
2. Where less than eight hours are worked pro rata rates for such shorter period shall be paid.
3. Plasterers' Hodcarriers, Bricklayers' Hodcarriers, Roofers' Laborers and Engineers, Portable and Hoisting, shall start 15 minutes before other workmen, both at morning and at noon.
4. Five days, consisting of not more than eight hours a day, on Monday to Friday inclusive, shall constitute a week's work.
5. The wages set forth herein shall be considered as net wages.
6. Except as noted the above rates of pay apply only to work performed at the job site.
7. Transportation costs in excess of twenty-five cents each way shall be paid by the contractor.
8. Traveling time in excess of one and one-half hours each way shall be paid for at straight time rates.
9. Overtime shall be paid as follows: For the first four hours after the first eight hours, time and one-half. All time thereafter shall be paid double time. Saturdays (except Laborers), Sundays and Holidays from 12 midnight of the preceding day, shall be paid double time. Irrespective of starting time, overtime for Cement Finishers shall not commence until after eight hours of work.
10. On Saturday Laborers shall be paid straight time for an eight-hour day.
11. Where two shifts are worked in any twenty-four hours, shift time shall be straight time. Where three shifts are worked, eight hours' pay shall be paid for seven hours on the second and third shifts.
12. All work, except as noted in paragraph 13, shall be performed between the hours of 8 A. M. and 5 P. M.
13. In emergencies, or where premises cannot be vacated until the close of business, men reporting for work shall work at straight time. Any work performed on such jobs after midnight shall be paid time and one-half up to four hours of overtime and double time thereafter (provided, that if a new crew is employed on Saturdays, Sundays or Holidays which has not worked during the five preceding working days, such crew shall be paid time and one-half. No job can be considered as an emergency job until it has been registered with the Industrial Association and a determination has been made that the job falls within the terms of this section).
14. Recognized holidays to be: New Year's Day, Decoration Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Christmas Day.
15. Men ordered to report for work, for whom no employment is provided shall be entitled to two hours' pay.
16. This award shall be effective in the City and County of San Francisco.

NOTE: Provision of paragraph 13 appearing in brackets ( ) does not apply to Carpenters, Cabinet Workers (Outside), Hardwood Floormen, Millwrights, or Stair Builders.

WHAT MAKES AN UP-TO-DATE HOME?

We continually see advertisements of houses for sale, and described as a "modern, up-to-date home built under an architect's supervision," which is evidently regarded as the last word in good design. But when we inquire we find that "space for a garage" or "a genuine Roman bath," and a few more such items are some of the principal boons offered. These though good in themselves cover only a small part of the ground, and we might almost claim that the things that we leave out are almost as important as what we put in.

Two slogans apply strongly "Economy in upkeep" and "labor saving appliances," and these more strongly suggest modern design than any amount of detail.

One important item in upkeep is painting. A few years ago elaborate mouldings and fancy cast iron verandah and other decorative features were painted in several colors, which needed more skill and infinitely more labor costs. Now, plain surfaces, relying largely on texture for effect are customary and instead of shutters, picket fences, balustrades, etc., to be painted and painted more often than ordinary plain work, simpler surfaces are the rule.

A home looks its worst when the grounds are disorderly and the building requires painting, so that anything which simplifies this may be regarded as a modern advantage.

Bathrooms are not now a luxury, but a necessity. Tiled walls and impervious floor with a slight natural fall towards a drainage outlet, are clean and labor saving, and if the bathroom is well ventilated, the desire to be first is not so evident.

Built-in furniture and cupboards are debatable subjects, as the choice of the person who is responsible for their positions may not coincide with those who come after. Further, unless the cupboards are quite impervious to vermin, they may be regarded with suspicion.

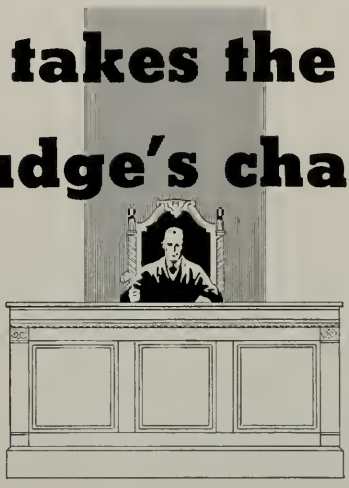
But anything that makes for "cleanliness, comfort, or convenience" comes within the scope of a modern design. An electric iron, is clean, simple, effective and quickly made available. A gas stove, provided the fumes are carried off effectively by a canopy over the whole, is another attraction. A vacuum cleaner deserves plenty of points for connection, as it not only removes the dust as well as a broom but collects it which a broom does not.

—*Building.*

GRANTED PROVISIONAL CERTIFICATES

At a recent meeting of the California State Board of Architectural Examiners provisional certificates were awarded to Eric W. Johnson, 2615 Dwight Way, Stockton, and Howard R. Perrin, Underwood Building, Klamath Falls, Oregon.

When your Client takes the judge's chair



YOUR CLIENTS judge you by the type of job you give them—the client expects and should receive an adequate wiring installation. Upon the verdict rests that intangible asset—good will.

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We will be glad to have one of our representatives assist you—in your own office—with your next Red Seal job. No charge for this advisory service, of course.

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Standard Oil Building
San Francisco

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Los Angeles

BUILDING INDUSTRY NO PLACE FOR UNSKILLED LABOR

EVERYONE engaged in the construction industry may well feel concerned over the trend which has developed in the Federal public works program for relief of unemployment and its ultimate effect on the industry, especially in view of the proposal to put to work directly under the $4,880,000,000 public works-relief bill now pending in Congress more than double the number of persons normally employed on construction projects. *Engineering News-Record* directs attention to the experience of Great Britain under a similar program as revealed in a report issued a few weeks ago by the Brookings Institution, in which the authors, Hill and Lubin, writing of "The British Attack on Unemployment" declared: "The policy of using construction projects as a means of providing relief for the rank and file of the unemployed, rather than for jobless building trade workers, has led to a swelling of the numbers attached to the public works industry." Under the British program the number of workers credited to the industry increased from 123,000 in 1923 to 164,000 in 1927, and to 290,000 in 1932, according to the statistics given in the report.

It is of vital importance to the construction industry at this time that in its public works program the Federal government should give all the aid possible to the industry, itself, by utilizing the facilities of private contractors and the services of regular construction workers to the fullest extent compatible with a sound recovery program. The industry will need in due time all the skilled and experienced men that can be marshalled. Since 1929 there have been no new recruits to the skilled trades. Prior to that time the ranks of the regular workers were dwindling and construction leaders were worried by the fact that young men were not coming forward to take the places of craftsmen who dropped out of the ranks.

Since the economic depression set in, many skilled workers thrown out of employment by the slump in construction have sought other vocations and many of these will not return to their crafts, even though a revival of private construction should start soon. Thus there is the prospect that a shortage of skilled workers would develop throughout the country with any large increase in the volume of private construction. In view of this situation, attention has recently been turned to the training of workers to fill the depleted ranks of the skilled trades. However, unless there is a quick revival of the industry it will not be easy to induce young men to enter it, especially if the regular workers have to give up too large a share

of employable time provided by public works to those outside the industry.

Recognition given by the government to the importance of construction in the national economic life is flattering, but to impose upon it, as proposed, the burden of providing immediate work relief for millions of unemployed without regard to the effect of such a policy on the future of the industry is, to say the least, disheartening. Construction leaders have not abandoned hope of influencing Congress to safeguard the interests of the industry in the pending $4,880,000,000 public works-relief bill and the delay in final action on the measure improves their chances of success, for thoughtful consideration must convince its members that permanent recovery of the industry must be the objective of any sound policy.—*Southwest Builder and Contractor.*

RECORDER BUILDING SKYLIGHTS

The skylight installation on the roof of the Recorder Building, San Francisco, is one of the largest and most successful of its kind in the West. The installation was made by Wieland & Kolthoff, 2194 Folsom Street. There are 29 windows and in spite of the severe rains following completion of the lights, there has been absolutely no leakage. The installation provides splendid illumination for the composing room.

ACADEMIC BUILDING

Plans have been completed by Herbert & Caulkins of Santa Rosa for a one-story frame and stucco academic building, also a gymnasium, for the Cloverdale Union High School District. Improvements will cost $45,000.

PIEDMONT RESIDENCE

Williams & Wastell, 374 17th Street, Oakland, have completed plans for a two-story and basement California Colonial style residence in Piedmont. The estimated cost is $35,000.

ECONOMIC SECURITY

The distinct advantages of employee participation in any state or national unemployment insurance plan, and the encouragement of employers to experiment with stabilization of employment in their industries, were discussed by Gerard Swope in a recent radio broadcast over the Columbia network.

Speaking on "Economic Security", Mr. Swope selected these two phases of the program now being considered by Congress, criticizing any plan which called for employer contributions alone as a payroll tax which should not be confused with the provision of real economic security for the workmen. Efficient employers, he also declared,

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1. It is immune to attack by TERMITES AND DECAY.
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7. It is PERMANENT

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LUMBER pressure-treated with REILLY TRANSPARENT PENETRATING CREOSOTE is dry, not oily. It has every appearance of untreated wood—yet it is permanently protected against termites and decay. It does not stain plaster or paper and can therefore be used with safety for trim, framing and subflooring. *You don't need gloves* for handling lumber pressure-treated with REILLY TRANSPARENT PENETRATING CREOSOTE any more than you do for untreated lumber.

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The new Decatur De Luxe Lavatory, illustrated here, is representative of the MUELLER line of quality vitreous china. . .

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QUALITY HAND MADE SHADE CLOTH IN ALL GRADES
Wholesale Distributors
SLOANE-BLABON LINOLEUM
AMBASSADOR VENETIAN BLINDS

could not be expected to be enthusiastic over any plan of stabilization of employment which taxed them for the shortcomings of other industries or employers. His address, in part, follows:

"I have been asked to speak regarding the Economic Security program now being considered in Congress. The subject is so large and my time so limited that I am going to confine my remarks to two phases—worker participation in unemployment compensation and stabilization or guarantee of employment.

"I proposed unemployment compensation in the General Electric Company in 1925. This did not appeal to the workers at that time, as they felt that there never would be another period of distress, but in 1930 I again brought the plan before them and it was adopted by an overwhelming vote at all our factories, employing approximately 50,000 people. This plan has been in effect now for almost five years—throughout the depression. Up to the end of 1934, $1,700,000 had been collected from employees eligible for benefits, $1,200,000 from other employees of the Company and $2,900,000 from the Company, which matches all employee contributions dollar for dollar — a total of $5,800,000. During this period, $3,300,000 in benefits was distributed to the employees and at the end of 1934 there was still $2,400,000 on hand. In addition, as a part of the plan $650,000 was loaned to employees and, showing the fine spirit of the workmen, even during these difficult times almost half of this has been repaid.

"Employee contributions are required in every unemployment system in Europe, with the single exception of Russia. Canada, which has just recently taken up this question, in a bill that passed the lower house on March 13th, provides for employee contribution equal to that of the employer, with the state also contributing. In this country, experts and actuaries have worked on this problem and many have made recommendations through various state commissions for employee contributions. To mention a few, the Minnesota commission recommended one-half from the employer and one-half from the employee; in Ohio, 2% from the employer and 1% from the employee, total 3% (although in this instance the actuary recommended 2% from the employer and 2% from the employee, total 4%); and in New Hampshire, 2½% from the employer and 1% from the employee, total 3½%. With employee contributions, the total fund can be increased over that provided merely by employer contributions, which therefore increases the benefits in amount and lengthens the period of benefits; and, even more important, employee contributions provide more effective administration and a clearer conception on the part of workers of their responsibilities as self-respecting citizens; the worker then

has contributed to the plan and regards it as his own.

"My reason for feeling that unemployment compensation be joint between employer and employee is not that the burdens on industry should be decreased. Whatever amount is necessary should be raised, even if eventually the burden on the employer be 3%, but at the same time the contributions from employees should be 1%, 2% or the same as the employer contributes.

It may be said the bill before Congress permits the states to have employee contributions, but there are very few states which will not follow the lead of the national government of putting the entire burden upon the employer, as the states would interpret this as the easier way. In the bill covering old-age pensions, Congress is considering placing the burden one-half upon the employer and one-half upon the employee, and it can be done for unemployment compensation also.

"If a general tax or a tax on payrolls is to be imposed either for revenue or for a particular purpose, it must not be confused with providing economic security for the workman. Everyone would think it a fine scheme if everything could be financed by taxes on the other fellow, and since, relatively speaking, there are fewer employers, it is easier to tax them and leave the large number of employees apparently free from the burden of taxation, but in the long run this cannot be done and especially in a democracy such as ours. I do not believe that in our country the workman wants economic security given to him; he wants the opportunity to earn enough to provide economic security. However, legislation is being considered in some states and in the nation's capital, to put the entire burden upon the employer. One hundred sixty years ago the demand was for *no taxation without representation;* now the way the the demand seems to be interpreted is *representation without taxation.*

"My second point is that every encouragement and incentive should be given the employer to stabilize employment, which to my mind is even more important than unemployment compensation and employee contributions.

"It is my earnest hope that whatever legislation is enacted by Congress and the states, encouragement will be given to the employer for greater stabilization of employment. This is the most effective way of giving economic security. After accomplishing results in those industries where stabilization can be made effective, we can concentrate attention upon those industries where, at all events for the present, we see no way of increased stabilization, where we will provide for unemployment compensation, jointly contributed to by employer and employee and jointly administered by them."

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PLEA FOR BEAUTY

The United States is "pitifully under-supplied with decent buildings", Charles W. Killam, professor of architecture in Harvard University, declares in a statement made public by the American Institute of Architects.

Usefulness, as well as art must guide the architects of today, says Prof. Killam, holding that one masterpiece cannot atone for a million shacks. Those who assert that the creation of great architecture is the first duty of the architect do not cover the whole ground, Prof. Killam points out in urging the architectural profession to face the task of meeting social needs.

"Most of our buildings are so inefficiently and uneconomically planned and built that we cannot afford to live, do business, recreate or worship in worthy surroundings," he continues. "The houses of nine-tenths of our people lack comforts. They are unbeautiful if not ugly; they are unkempt inside and about, often unsanitary and unsafe.

"Half of our school buildings are out-of-date, musty, poorly lighted, not entirely safe. Our churches are often the largest and ugliest buildings in our villages, less dignified than our pumping stations.

"Consider the drab and desolate domiciles which disgrace the countryside in the Middle West, for instance. Or consider the eastern states. I have toured ten of the northeastern states from the Virginias to Maine. A half-dozen old houses in Alexandria or a dozen manors in the whole state of Virginia cannot redeem the city or the state.

"It gets better as you leave Pennsylvania and drive toward Maine. Litchfield, Lyme, Farmington, Concord, Cohasset, Camden, and Wiscasset show what might be; what should be. In another way, the tenement house of the Amalgamated Clothing Workers on Grand Street, New York,

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"If architects say that they cannot improve these conditions; that most of the smaller buildings must be designed by carpenters and many of the larger buildings by contractors, engineers, or realtors, they are throwing away a tremendous opportunity. Architects should be most interested in the broadcast, most socially useful function of the architect. The profession has room for all kinds of abilities, talents, and genius, and its field should cover, as nearly as practicable, all the shelters of mankind.

"To accomplish this architects must do, and do well, small buildings and large, must meet the manifold needs of housing agriculture, industry, education, recreation and religion. The demand for monuments and cathedrals is small, but we live with and suffer every day the inconvenient, uneconomical and ugly buildings. Most of them must be utilitarian and economical. That in itself has its challenge."

Architects must avoid "overcoating structures in smart but ephemeral fashions," Prof. Killam warns in discussing design in its relation to construction. Vehicle makers, he observes, progress toward a rational use of forms and materials more rapidly in a decade than architects do in a century.

"Architecture cannot flourish as a mysterious art to be appreciated only by its practitioners. It cannot justify itself to the ignorant or prejudiced layman, but it must justify itself to the intelligent layman. Such a layman can understand a wall, a roof, a wooden post, a brick pier, a stone or reinforced concrete column. He can understand a lintel and an arch. He likes ornament and color better than bareness, and is glad to see these structural elements enriched in relief or color.

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wings, claws, and what not with which some modernists thicken and overload the curtain walls of our skeleton buildings, wasting ground area and complicating the steel frame. It may be said that the layman is tired of Gothic buttresses and Classic cornices, but I wonder if he admires any more the vertical projections like feeble and useless buttresses which the modernist uses, and which run up the front and disappear over the parapet like straps on a trunk.

"Some of the structural elements must be concealed for fire protection, others for greater convenience, comfort or elegance, but architects often conceal the structural facts with uncalled-for projections, and then the intelligent layman can no longer follow us: we have to explain too much. He does not see why we should waste his money covering up the bones of a twentieth-century structure to make it look like a fifteenth-century shell or to make it look like the latest experiment in the international style."

HIGHWAY LIGHTING

In an endeavor to obtain information that will increase safety in vehicular operation at night on state highways at points of possible hazard, the California State Highway Division is making a trial installation of a new type of light at McConnell substation, where the highway passes under the Southern Pacific railroad between Sacramento and Stockton.

The light is of the sodium vapor type, brought out by the manufacturer in an effort to produce units for highway lighting which would be satisfactory from the drivers' standpoint and sufficiently economical as to installation and operating costs as to make highway lighting more general than at present.

Until very recently, at least, the most satisfactory light was that of the incandescent type. In addition to the cost necessary to obtain satisfactory results on the large areas involved, this type of lamp

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has a light source of very high intensity, offering some difficulty in providing the desired degree of illumination without an accompanying glare which tends to defeat the purpose of the illlumination.

A light of the wrong type or improperly installed may be more dangerous on a highway than no lights other than the headlights of vehicles, particularly if glare is present, as it may conceal a vehicle or obstruction behind it from sight of the approaching driver.

The type of light installed is reported by the manufacturer to have marked advantages in these regards. The light is developed by the passage of an electric current through sodium vapor in a tube 3 inches in diameter and 12 inches long. This entire tube glows and gives off its light in a manner similar to the neon tube used for advertising purposes and is of a soft orange color.

The light has the distinction, as compared to daylight or incandescent lamp light, of being monochromatic; that is, of having only one color instead of a fusion of many. This characteristic causes a loss of color differentiation of objects under the light, but it is claimed that this is not necessary for the particular purpose for which developed. The outstanding feature claimed for the lamp is an absence of glare due to the large volume low intensity light source as compared to an incandescent lamp giving off the same amount of light.

This type of light was first offered by the manufacturer in the spring of 1934 and the installation referred to is one of two first made in the west. It will be watched with interest to see if it's development is worthy of further use.

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With an average of 240 men per day, including 24 riveting gangs, employed in the erection of the San Francisco tower of the Golden Gate Bridge, the monumental structure has reached an elevation of approximately 500 feet. The ultimate height of the tower will be 746 feet.

Joseph B. Strauss, chief engineer, states that over 14,000 tons of steel have been erected on the tower to date and that the painting of the first field coat has been commenced. This paint is of a reddish brown color to distinguish it from the red lead shop coat of paint with which tower steel is covered prior to erection.

As the San Francisco tower is reared skyward work on the other units of the bridge is progressing rapidly. On the San Francisco anchorage the west weight block and anchorage housing are taking definite form. Carpenters are building forms for the last lift on the housing between the main cables and the pouring of concrete on the west weight block is approximately 45 per cent complete.

Work on military replacements is under way. Concrete is being poured on the high viaduct of the Presidio approach road and excavations have been started for the final pier of this structure.

On the Marin side of the Golden Gate, excavations are under way for the footings and walls of the anchorage housing and concrete is being poured on the anchorage weight block. Pins for the upper tier of eye bars have arrived on the site and two carloads of eye bars are in transit to the job.

RACING PLANT

Los Angeles Turf Club, Dr. Chas. H. Strub, manager, Arcadia, contemplates making a number of additions and improvements to the horse racing plant at Arcadia this summer.

MAY 1935 · · HONOR AWARDS

Architect & ENGINEER

Honor Award—Vallejo Junior High School

Frederick H. Reimers, Architect
Elmer L. Cave, Supt. of Schools

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LINCOLN
MARINLEY
ROOSEVELT

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To Whom It May Concern:

The Mariano Guadalupe Vallejo Junior High School was completed and accepted under date of July 20, 1933. The construction of that building began during the month of September of 1932. Frederick H. Reimers, 233 Post St., San Francisco, was the architect on the building.

In the preliminary conferences held with Mr. Reimers before the plans and specifications of the building were prepared, the question of windows for the building was one of the items discussed. Members of the Board of Education and myself had previously made an inspection of the various types of windows suitable for school purposes and our investigations convinced us that the windows made by the Universal Window Company, 950 Parker Street, Berkeley, were one of the best awning types of windows on the market. We therefore requested that the specifications should be so drawn that we could get either the Universal Window or its equal.

When the bids came in the low bid on the general contract was received from the San Francisco Construction Company. This company used figures furnished by some other window company in the preparation of their bid. After the contract was awarded, the construction company requested permission to use the window the figures for which they had used in making their bid, but because of the fact that the judgment of the architect, members of the Board of Education and myself was that the other windows were not the equal of the Universal Windows, we could not permit the other windows to be installed. The Universal Window was installed and a preference of something over $1000, over a competing window was given in favor of the Universal.

The windows have been installed and have been in operation in our new building for quite some time. In my judgment these windows are of the latest and best type of awning type windows on the market today. The workmanship which was used in the installation of the windows was of a very high character and it was furnished by the Universal Window Company. The character of the firm which makes the Universal Windows is such that no Board of Education will have cause for concern over any business dealings into which they may enter with the said company.

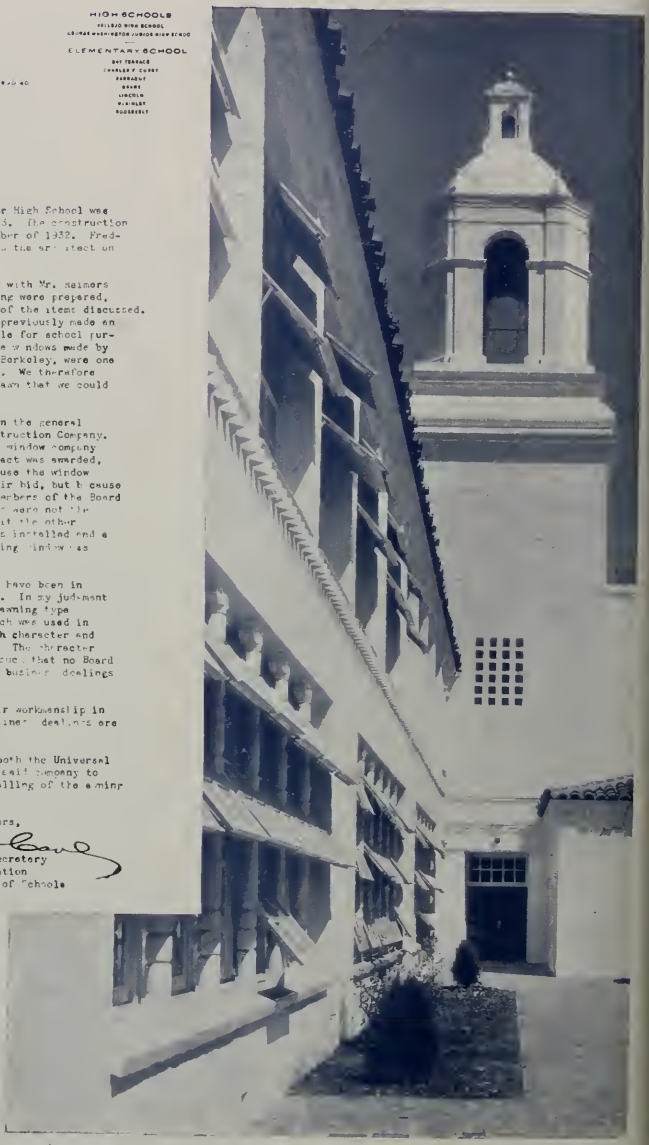
Their materials are high grade, their workmanship in the installation is of a high order, and their business dealings are always of a frank and courteous character.

It is with pleasure that I command both the Universal Window Company and the products turned out by the said company to any Board of Education that may consider the installing of the awning type windows.

Very truly yours,

Elmer L. Cave

Elmer L. Cave, Secretary
Board of Education
City Superintendent of Schools



Read preference given to

Universal Windows

MR. REIMERS, the architect, states:
"The windows work perfectly and to my great satisfaction."

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950 Parker Street, Berkeley

Notes and Comments

MR. DINWIDDIE'S design for a model electric home which received a $1250 award in the recent General Electric competition, is to be used in the construction of a number of houses in Northern California, the exact locations to be announced later. In the southern part of the state, and in fact all over the country, demonstration homes will be built from prize winning drawings. The houses will be used to demonstrate to the public the value of good design and the possibilities of electrical equipment in the home. It is interesting to note in the report of the jury that fully 75 per cent of the plans depicted the flat roof, modern type of house, somewhat as displayed at the Century of Progress in Chicago. Many designs placed the garage at the front of the house with the kitchen adjoining, and the living room across the rear, facing the yard and garden. All plans gave particular attention to the layout of the yard with its shrubbery and flowers. Greater utilization of the cellar or basement, now commonly used for the furnace and perhaps the laundry, was also brought out in the many designs. This space is used for a recreation or play room for children. This is made possible by the use of automatic heat, such as supplied by the oil or gas furnace. The drawings showed that time-saving, step-saving, and labor-saving had been the rule in the studies of the architects.

* * *

AN important decision has recently been handed down by the Massachusetts Supreme Court against the unsightly bill-board. The ruling may mark the beginning of a nationwide movement in opposition to the bill board.

Chief Justice Rugg delivered a 58-page opinion which is remarkably comprehensive and eminently satisfactory to the friends of the American landscape and to those who maintain that rural beauty and the amenities of places are proper objects of state protection under the police power and that the rights of the general public are paramount to those of private property and private business. The Court sustains in every particular the restrictions and regulations adopted by the Commissioners of the State Department of Public Works, to whom the Massachusetts Legislature delegates the power of regulation and control, and also the restrictions in the by-law of the town of Concord. The decision is based on a broad conception of the police power of the State, a recognition of the right of travelers upon the highway to escape from the annoyance of commercial propaganda, and the legality of the protection of public amenity.

Under the general title of *General Outdoor Advertising Company, Inc., and others vs. Department of Public Works*, thirteen different cases were consolidated for common consideration and decision. Tied in with these were two other cases, one a case involving the restrictions imposed by the town of Concord, and the other a case involving the large and conspicuous electric Chevrolet roof-sign which overlooks and disfigures Boston Common and the State House.

The decision supports the regulations and restrictions as to sizes, location, setbacks (the legality of the setback provisions being especially stressed), fees, and the banishment of billboards from locations of scenic and historic interest. The decision on the latter point marks the highest point yet reached in the struggle to protect public amenity. Not only does the court sustain the right of complete exclusion from scenic and historic places as a part of the right to "regulate and restrict," but it should be noted that the sole ground for the refusal to renew the license for the Chevrolet sign had been its impairment of the dignity of the State House and Common. Yet that refusal is sustained. Of only less significance is the Court's insistence upon the right of travelers upon the highways to be free from the unwelcome intrusion of the billboards.

The National significance of the decision is greatly emphasized by the fact that the admirable and persuasive argument made by counsel serving the public interest against the billboard companies was expressly based upon two fundamental points, both of which are sustained by the Court: (1) There is a conflict of interest between the billboard industry on the one side and the public on the other, the billboard industry claiming the right to broadcast commercial propaganda into parks, highways, and homes by means of conspicuous structures erected on private property, and the public claiming the right to escape from this propaganda in their parks, highways, and homes; and (2) in this conflict of interests the police power of the State, either direct or delegated legislative power, may determine which right shall prevail over the other.

It cannot be expected that the billboard industry will subscribe to the sentiment expressed by one speaker: "The billboard has no place in the country and a mighty small one in the city." Will it, however, consent to regulations limiting the location of billboards to business and industrial districts, and can such districts be defined to meet the views of the billboard interests and their opponents?"

* * *

THE recent trade agreement between the United States and Belgium, which lowers duties on imports of various iron and steel products, brings a serious threat of less work and smaller earnings for thousands of employees in American steel mills, according to Steel Facts, published by the American Iron and Steel Institute.

The treaty, which became effective May 1, reduces import duties on many steel products from $1 to $3 a net ton.

These reduced import duties have not only been granted to Belgium, but under an "unconditional" most-favored nation clause in the treaty, they will also apply to similar classes of imports from practically all other foreign steel producing countries.

During the years from 1931 to 1934, demand for American-made steel products was so depressed that production at times dropped below 15 per cent of capacity with resulting losses over the four years to the industry totaling $285,000,000. From 1930 through 1934, imports of pig iron, scrap and rolled steel products amounted to 2,068,935 tons.

This meant that 57,000,000 man hours of work and $36,000,000 in wages at present rates were lost to American workmen.

These imported products were sold by the foreign steel makers and shipped to the United States to sell at prices ranging from $5.00 to as much as $20.00 a ton under American prices.

For every ton of rolled steel imported, an average of $25 is taken out of an American pay envelope or, at present average operating rates, one man is deprived of a week's work.

The prevailing domestic composite selling price for finished steel products approximates $54.00 per ton, which includes materials, labor, overhead, investment charges and profits. It is obvious, therefore that the wage earner is the chief victim in the loss of steel tonnage to foreign competition.

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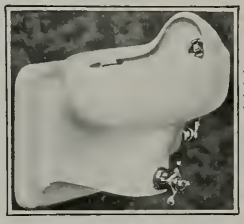
ONCE MORE — ITS HAWS



Redesigned Model 7A

Two Honor Awards

The Vallejo Union High School, Frederick H. Reimers, architect, and the Veterans' Memorial Building, Hayward, Henry H. Meyers, architect, were awarded Honor Certificates by the Northern California Chapter, A.I.A.

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VALLEJO JR. HIGH SCHOOL, VALLEJO WINNER GROUP V (CLASS B) FREDERICK H. REIMERS, ARCHITECT

CONGRATULATIONS TO A.I.A. AWARD WINNERS

N. Clark & Sons feel proud of the fact that several of the winners of awards in the recent Fourth Biennial Exhibition of Northern Chapter, A. I. A., made very prominent use of its materials. The buildings are:

GROUP 1, Class B, single dwellings of 7 to 15 rooms. Residence of Dr. Elizabeth Arthurs, San Francisco. Warren Charles Perry, Architect. Roof of dark Ramona Tile.

GROUP 3, Class A, mercantile buildings under 5 stories. Store for Levy Bros., San Mateo. Samuel Lightner Hyman and A. Appleton, Architects. Facade faced with N. Clark & Sons Architectural Terra Cotta.

GROUP 3, Class E, Theaters and Auditoriums. Palo Alto Community Theater. Birge M. and David B. Clark, Architects. Entire roof of Toledo Antique Handmade Tile.

GROUP 5, Class B, Junior High Schools. Vallejo Junior High School. Frederick H. Reimers, Architect. Entire roof of Toledo Antique Handmade Tile.

We congratulate the winners of these awards and are pleased that in some measure we contributed to their success.

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SAMUEL LIGHTNER HYMAN AND A. APPLETON, ARCHITECTS

Awarded Honor Certificate by Northern California Chapter, A.I.A.

The Architect & ENGINEER

May, 1935

Awards

by Frederick W. Jones

Members of Northern California Chapter Receive Certificates of Merit for Their Architectural Achievements

THE biennial distribution of honor certificates by the Northern California Chapter, The American Institute of Architects, has been made in conjunction with one of the best architectural exhibitions held in San Francisco in recent years. There was only one thing to mar the complete success of the undertaking. That was the unfortunate selection of the gallery of the Civic Auditorium as the place for hanging the pictures. Its unfitness for such an exhibition became apparent soon after the photographs were hung. Tape which was intended to hold them to the walls curled up under the forced dry air in this particular part of the building and caused the pictures to lop over or fall to the floor. After repeated attempts to remedy the conditions it was decided to move the exhibit to more suitable surroundings in the Veterans Building where the showing will be continued until June 15. Don't fail to see it.

RESIDENCE OF WALTER EGAN, CARMEL
Roland I. Stringham, Architect

The committee in charge of the exhibition, headed by Mr. Ballantine, deserves a lot of praise for its work. It was a deep

disappointment when it was found necessary to rehang the pictures, for much time and patience had been spent, first in getting the display ready for the jury, later for the

RECTORY, MISSION SAN JUAN BAUTISTA, SAN JUAN
Irving F. Morrow and Gertrude C. Morrow, Architects

architects in prevue and finally for the public. Classification and arrangement was no easy task and the light conditions were none too good for an effective display.

Now as to the awards. The jury was composed of Roland E. Coate of Los Angeles, Windsor Soule of Santa Barbara and Herman Brookman of Portland, all very capable members of the profession. The local Chapter has found by experience that it is a better plan to select a jury from distant cities. Then there can be no complaint or suspicion of favoritism. Awards were made strictly upon the merit of the work shown. Each juryman was given a list of the entries and unaccompanied, viewed each exhibit, checking what he considered was worthy an award. This completed, the three met as a committee to compare notes. In rendering its final report it is interesting to note that practically all of the twenty-nine awards were the original choice of each member, so the matter of making the selections unanimous was not a difficult one. There was, naturally, in view of the depressed condition of the building industry, a preponderance of residence work which accounts for so many awards in this class. For the last two or three years commercial work has been practically nil and public structures have been comparatively few in number. It was a matter of surprise that there were so few modernization schemes presented, while new construction, along radical lines, was noticeably absent. The few examples of the moderne evidently did not impress the jury, for no awards for this type of architecture were made.

Our Northern California architects may well be proud of their achievements in residence design. If we are to judge by what was displayed at this exhibition there has been a very considerable improvement in domestic architecture in recent years. The work shows a note of freshness that is especially marked in the work of some of the younger men.

I like the way Mr. Brookman, one of the jury, summed up his observations of the exhibition to the writer:

"The work as a whole was clean and refreshing. We were particularly impressed with the achievements of some of the younger members of the profession. Speaking for myself, I would single out the work of Mr. Confer, Mr. Wellington and Mr. Wurster as representing a line of endeavor having exceptional promise. I feel it would be a fine thing for all architects to take note of what these three men have been doing."

Mr. Brookman said he was impressed with the general tendency of our local architects towards simplicity, due in a measure no doubt to financial limitations. Personally Mr. Brookman is opposed to heavy detail and unnecessary ornamentation. Simplicity and sanity in most cases characterize the work of your San Francisco architects, he said. Attempts to do something different, by making a beautiful home look like a box factory, were noticeably absent. Mr. Brookman said he was pleased to note that

San Francisco is at least one large city that has not been carried away with the so-called modern movement, particularly in domestic architecture.

Several rather daring departures from accustomed rules were noted by Mr. Brookman. For example, one architect disregarded the regulation width of stairs and doorways so as to provide more room elsewhere. Here was an innovation he thinks worthy of study and possible debate.

RESIDENCE OF MRS. GEO. B. ROBBINS, HILLSBOROUGH
William Wilson Wurster, Architect

The report of the jury follows:

GROUP I (*Class A*)—*Single Dwellings of Less Than Seven Rooms*

Frederick L. R. Confer. Residence in Piedmont Pines, Oakland.

William I. Garren. Cabin of Earl Miller, Fallen Leaf Lake.

Victor Galbraith. Residence of Howard White, Lodi.

Henry H. Gutterson. Residence of W. Foster Stewart, Los Altos.

Roland Irving Stringham. Residence of W. H. Durham, Berkeley.

Roland Irving Stringham. Residence of Walter Egan and Sidney A. Trevvett, Carmel.

William Wilson Wurster. Residence of E. C. Converse, Carmel.

GROUP I (*Class B*)—*Single Dwellings of Seven to Fifteen Rooms*

Frederick L. R. Confer. Residence of Dr. Cary Snoddy, Vallejo.

Albert John Evers. Residence of Mr. and Mrs. J. D. Adams, Ross.

Chester Miller and Carl Warnecke. Residence in Piedmont Pines, Oakland.

Warren Charles Perry. Residence of Dr. Elizabeth Arthurs, San Francisco.

William Wilson Wurster. Residence of Mrs. Geo. B. Robbins, Hillsborough.

William Wilson Wurster. Residence of Mr. and Mrs. Donald Gregory, Santa Cruz.

John Knox Ballantine, Jr. Residence of Dr.

RESIDENCE OF W. H. DURHAM, BERKELEY
Roland I. Stringham, Architect

T. Eric Reynolds, Piedmont.

Winfield Scott Wellington. Residence of Mortimer C. Leventritt, San Francisco.

GROUP I (*Class C*)—*Single Dwellings of Fifteen Rooms or More*

John Bakewell, Jr., and Ernest E. Weihe. Residence of Norman B. Livermore, Ross, California.

Gardner A. Dailey. Residence of E. M. Manning, Palo Alto.

Albert Farr and J. Francis Ward, associate. Estate of Milton Haas, Los Altos.

GROUP I (*Class D*).

Birge M. Clark and David B. Clark. Outdoor Kitchen of Chas. and Kathleen Norris, Palo Alto.

GROUP III (*Class A*)—*Mercantile Buildings, Less Than Five Stories*

Samuel Lightner Hyman and A. Appleton. Store for Levy Brothers, San Mateo.

GROUP III (*Class E*)—*Theaters, Auditoriums*

Birge M. Clark and David B. Clark. Palo Alto Community Theater.

GROUP III (*Class G*)—*Miscellaneous Commercial Buildings*

Gardner A. Dailey. Work shop of Allied Arts Guild of California, Menlo Park.

GROUP IV (*Class A*)—*Churches*

Irving F. Morrow and Gertrude C. Morrow. Rectory, Mission San Juan Bautista, San Juan.

GROUP V (*Class B*)—*Junior High Schools*

Frederick H. Reimers. Vallejo Junior High School.

GROUP VI (*Class A*)—*Administration and Other Government Buildings*

Arthur Brown, Jr. War Memorial Group, San Francisco.

GROUP VII (*Class A*)—*Monuments*

Frederick H. Meyer. Court, deYoung Memorial Museum, San Francisco.

Henry H. Meyers, George R. Klinkhardt and Mildred S. Meyers (associates). Veterans' Memorial Building, Hayward.

GROUP X (*Class A*)—*Residential Alterations*

John K. Branner. Kappa Alpha Theta House, Stanford University.

GROUP X (*Class B*)—*Commercial Alterations*

Henry H. Gutterson. Sather Gate Apparel Shop, Berkeley.

WAR MEMORIAL GROUP, CIVIC CENTER, SAN FRANCISCO
ARTHUR BROWN, JR., ACHITECT;
G. A. LANSBURGH, COLLABORATING ARCHITECT

McNear Haydite Aggregates used in concrete building units

MARIANO GUADALUPE VALLEJO JUNIOR HIGH SCHOOL, VALLEJO, CALIFORNIA

FREDERICK H. REIMERS, ARCHITECT

PALO ALTO COMMUNITY THEATER, PALO ALTO
BIRGE M. CLARK AND DAVID B. CLARK, ARCHITECTS

VETERANS MEMORIAL BUILDING, HAYWARD, CALIFORNIA

HENRY H. MEYERS, ARCHITECT; GEO. R. KLINKHARDT AND MILDRED S. MEYERS, ASSOCIATES

SATHER GATE APPAREL SHOP, BERKELEY, CALIFORNIA
HENRY H. GUTTERSON, ARCHITECT

KAPPA ALPHA THETA HOUSE, STANFORD UNIVERSITY, PALO ALTO

JOHN K. BRANNER, ARCHITECT

WORK SHOP OF ALLIED ARTS GUILD, MENLO PARK, CALIFORNIA

GARDNER A. DAILEY, ARCHITECT

Tiling by Solon and Schemmel, San Jose

OUTDOOR KITCHEN, ESTATE OF CHAS. AND KATHLEEN NORRIS, PALO ALTO, CALIFORNIA

BIRGE M. CLARK AND DAVID B. CLARK, ARCHITECTS

RESIDENCE OF MR. AND MRS. J. D. ADAMS, ROSS, CALIFORNIA
ALBERT JOHN EVERS, ARCHITECT

RESIDENCE OF MR. AND MRS. E. C. CONVERSE, CARMEL, CALIF.
WILLIAM WILSON WURSTER, ARCHITECT

RESIDENCE OF DR. T. ERIC REYNOLDS, PIEDMONT
JOHN KNOX BALLANTINE, ARCHITECT

HONOR AWARDS, NORTHERN CALIFORNIA CHAPTER.

McVear Brick

RESIDENCE OF NORMAN B. LIVERMORE, ROSS, CALIFORNIA
JOHN BAKEWELL, JR., AND ERNEST E. WIEHE, ARCHITECTS

RESIDENCE OF W. FOSTER STEWART, COUNTRY CLUB GROUNDS, LOS ALTOS, CALIFORNIA

HENRY H. GUTTERSON, ARCHITECT

RESIDENCE OF MORTIMER C. LEVENTRITT,
SAN FRANCISCO
WINFIELD SCOTT WELLINGTON, ARCHITECT

RESIDENCE IN PIEDMONT PINES, OAKLAND, CALIFORNIA
FREDERICK L. R. CONFER, ARCHITECT

HONOR AWARDS, NORTHERN CALIFORNIA CHAPTER.

RESIDENCE IN PIEDMONT PINES, OAKLAND, CALIFORNIA
CHESTER H. MILLER AND CARL WARNECKE, ARCHITECTS

ESTATE OF MILTON HAAS, LOS ALTOS, CALIFORNIA
ALBERT FARR, ARCHITECT; J. FRANCIS WARD, ASSOCIATE

HONOR AWARDS, NORTHERN CALIFORNIA CHAPTER,

RESIDENCE OF E. M. MANNING, PALO ALTO, CALIFORNIA
GARDNER A. DAILEY, ARCHITECT

RESIDENCE OF MRS. DONALD M. GREGORY, SANTA CRUZ
WILLIAM WILSON WURSTER, ARCHITECT

RESIDENCE OF DR. ELIZABETH ARTHURS, SAN FRANCISCO
WARREN CHARLES PERRY, ARCHITECT

RESIDENCE OF HOWARD WHITE, LODI, CALIFORNIA
VICTOR GALBRAITH, ARCHITECT

RESIDENCE OF DR. CARY SNODDY, VALLEJO, CALIFORNIA
FREDERICK L. R. CONFER, ARCHITECT

Homes

● *Speculative Builders will be Permitted to Use Prize Winning Drawings of "New American" Style Houses*

JUST how badly the architectural profession of this country needed work was demonstrated when more than nine thousand architects entered the recent General Elecric "New America" home competition. Out of this number two thousand actually participated, submitting that many drawings and from which the competition sponsors awarded 52 prizes.

T. K. Quinn, vice president of the General Electric Company, has outlined the company's ambitions and meritorious plans in connection with these prize winning designs and if carried out they should prove a considerable stimulus to the home building movement. Mr. Quinn writes:

"From this competition we learned that the realism of the times is now reflected in a New American design. Architects, the country over, have discarded many old conceptions. During the lull in building, the invention and use of new equipment and materials has continued. The changed social and economic outlooks have had their effect and the material evidence will soon appear in new and different houses.

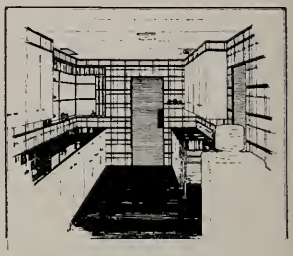
"The public and its interpreters and specialists are now thinking in terms of designing houses from the inside out. They no longer begin with a fixed external picture which carries with it the connotation of a required internal plan.

"The New American design requires an approach from the point of view of providing an organization of space for the living of a typical family. It is planned for conveniences of space-use in contrast to the old conventional arrangements. The kitchen—the workshop of the home—is compact and provides for the use-sequence of equipment and it is fully equipped.

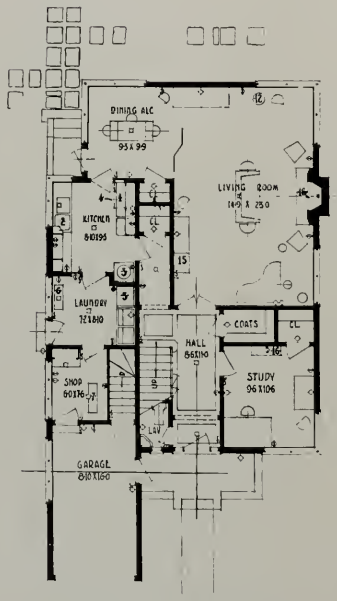
"The New American house contemplates the co-ordination of indoor and outdoor living with terraces, porches, decks and even roof space directly available from several rooms. It is all informal rather than symmetrical or stylistic. It is simple in design, eliminates cornices and mouldings and emphasizes livability in every possible respect.

"In this New American house there is a tendency to combine the dining room with the living room either at the end or as an alcove. The windows are larger and are placed where needed rather than for external design balance.

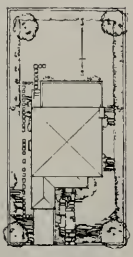
"Garages in the New American house



PERSPECTIVE OF KITCHEN

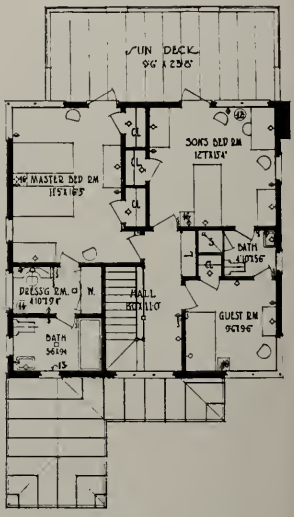


FIRST FLOOR PLAN



PLOT · PLAN·

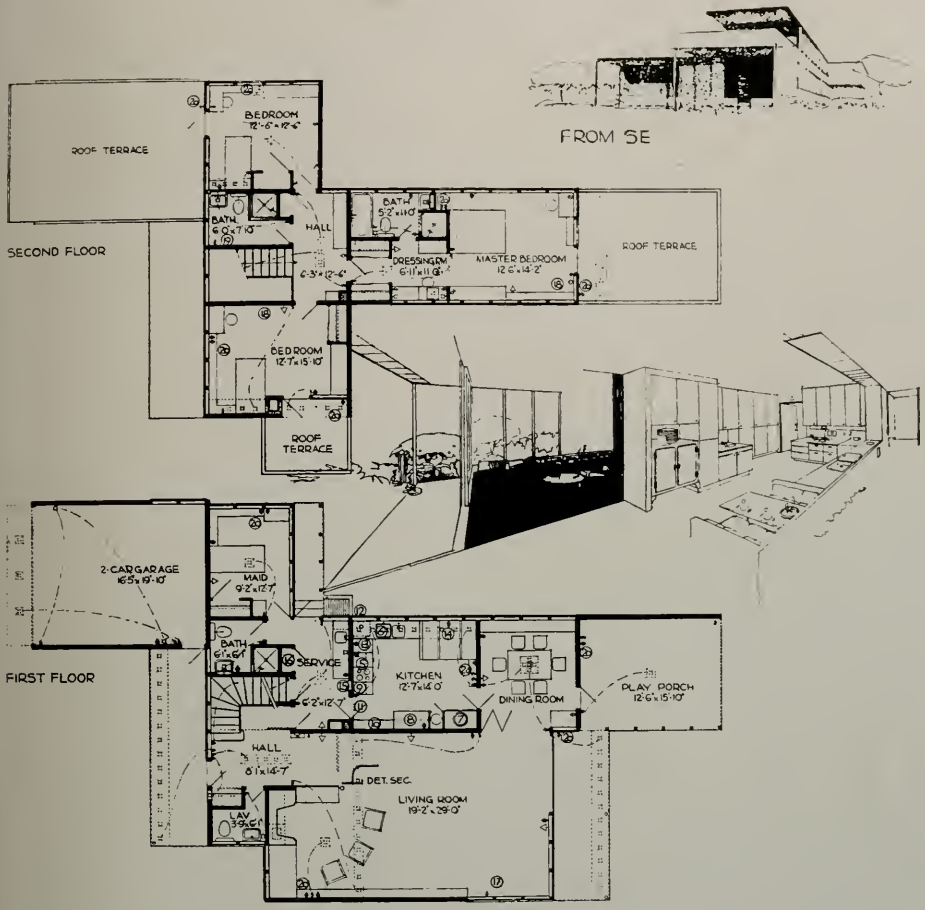
BASEMENT PLAN



SECOND FLOOR PLAN

AWARDED SECOND PRIZE—CLASS B—GENERAL ELECTRIC HOUSE COMPETITION

JOHN EKIN DINWIDDIE, ARCHITECT



AWARDED SECOND PRIZE—CLASS D—GENERAL ELECTRIC HOUSE COMPETITION

RICHARD J. NEUTRA, ARCHITECT

are usually placed logically to the front and near the street, saving long driveways and conserving lot areas. The old pitched roof is often modified, lowered or flattened out.

"In the relatively small house field there is now something new to buy and sell. It's new and different, practical and attractive.

"The public is receptive. There is a surprising undercurrent of curiosity and interest in housing. People want to be sold. They can only be sold by actually showing and demonstrating the latest and best in houses and doing it in such a way as to spread confidence and create a demand for them. These new houses will establish

new standards and the modernization of old homes will naturally follow on a large scale.

"Our aim is to have built one house for each 100,000 of population by September 1, 1935, so that it will be opened for demonstration to the public during the months of September and October. There are no limitations as to the size of the communities or the total number of houses except as may be provided by the local committees.

"A selection of about a dozen prize-winning plans will be made available to the builders at a price of $25 each, including the working drawings. Builders who decide to associate themselves with this program may make their own choice of these plans. We recommend that local architects be employed at least in a general supervisory capacity. It is not our intention to be too exacting in the matter of dimensions or variations in the style of the houses, which do not affect the electrical equipment."

PUBLIC LIBRARY

Club

by Douglas D. Stone, Architect

● *Remodeled Home of San Francisco Olympians Has Many Outstanding Features*

SWIMMING POOL, OLYMPIC CLUB, SAN FRANCISCO
Douglas D. Stone, Architect

THE designing and the construction of the alterations and additions to the Olympic Club Building, San Francisco, presented to the architect and builder a fascinating but immensely complex problem. Faced with existing structural facts, a limited budget, a building that demanded operations during reconstruction, and with a large number of members to satisfy, achievement of the idea called for serious study and thought. For months before construction work actually started, plan after plan was made and discarded and materials were investigated that the maximum service and beauty might be obtained at the lowest practical cost.

The president, the board of directors, the management and the heads of each department gave unstintedly of their time, to cooperate with the architect and builder in the formation of the drawings. Without this splendid assistance it would have been impossible to achieve the results obtained. In working out the problems the architect labored day and night with the builder, weigh-

Photo by Brenenstul Lindgren & Swinerton, Inc., Builders

REMODELED OLYMPIC CLUB BUILDING, SAN FRANCISCO

DOUGLAS D. STONE, ARCHITECT

SKETCH BY ARCHITECT OF REMODELED OLYMPIC CLUB BUILDING, SAN FRANCISCO
Douglas D. Stone, Architect

ing the value of each detail of design with the expense involved, and only after months of this type of work, combined with almost daily meetings between the president, the management and the architect and builder, were the plans finally completed.

Construction got under way in August, 1934, and was followed almost immediately by a series of difficulties that handicapped every move. Deteriorated and corroded plumbing, rusted metal lath, loosened plaster, faulty wiring and numerous other obstacles made each day's progress a new and unforseen problem, requiring constant attention and thought. But the major difficulty, and the one that seemed a veritable mountain to overcome was the corrosion of structural steel in and around the swimming tank. Beams were found completely eaten away, reinforcing steel that was the very strength of the tank, had become corroded to total failure. Practically all metal work in the proximity of the pool and shower sections had to be replaced. The complete tearing out of the tank would have been immensely expensive and would have been a long drawn out job. Almost endless studies were made as to the best way to solve the problem and finally the present system of a tank within a tank shored up below with steel and brick walls was decided upon. It was a real engineering achievement.

Practically every room in the old building was included in the general work of renovating. In short, the club has the equivalent of a new home with every modern need taken care of.

PENCIL SKETCH BY W. R. YELLAND, ARCHITECT

Quakes

by A. Floris

Design of Horizontal Members to Resist Earth Temblors Described by Los Angeles Structural Engineer

THE seismic rehabilitation of school buildings in Los Angeles and vicinity is now, as far as design is concerned, partly completed. As basic principle of design it is required by the State Division of Architecture that any part of the structure shall not deflect appreciably more than another. Thus dangerous cracks in walls and other resisting members may be avoided and the building is made to move as a unit.

Inasmuch as walls, frames and other vertical members cannot be made in practice to deflect equally, the ideal solution of the problem would be to load each of these members in such a way that their deflections will be equal. This method of earthquake resistant design was applied by Naito, for the first time, to buildings in Tokio. In order to distribute the earthquake load to vertical members inversely proportional to their deflections, however, it is neccessary to provide the structure with horizontal members, consisting of trusses, slabs or beams. These members serve the double purpose of supporting the tributary loads, caused by walls, roof and floors and of distributing them in such a way that each vertical member receives only that portion of the total load which produces everywhere equal deflections. Sometimes the tributary loads, acting on walls and frames, are greater than those distributed in accordance with their rigidities. In such cases the excess loads have to be transferred or carried over to stronger members by truss or beam action. The method of procedure is the following:

After the total earthquake load of the building, supported by the vertical members, is distributed in accordance with their rigidities, the corresponding inertia loads of these members, due to earthquake, should be subtracted. From the difference thus obtained the tributary loads acting upon these members have to be subtracted. If this difference is negative, the excess loads should be carried over to stronger members, which fact determines the span of the carrying over truss, beam or slab. In addition, the difference of distributed minus inertia and carried over loads produces stresses in these horizontal members.

which can be smaller or greater than those due to tributary loads only. It is evident, therefore, that the greatest of the two actions should be taken into account in designing earthquake resistant structures, besides the action of carried over loads. In many cases this last named action will not take place when the above mentioned difference is positive.

Having distributed the earthquake load in accordance with the above principles, it is necessary to determine the stresses produced in the horizontal members. By considering the loads, corresponding to each vertical member as reactions and distributing them in proportion to adjacent spans, the shearing forces are obtained, which in general are not equal at both ends of the span. Assuming a linear load distribution, producing these shearing forces and neglecting continuity, this loading can be readily determined by means of two equations with two unknowns each, the unknowns being the load ordinates over the supports. Under these assumptions and for positive shearing forces, the loading will be composed either of two positive or one positive and one negative triangles. The loading of the horizontal members being known, their stresses can be readily determined.

The above analysis assumes that the stress distribution in walls and slabs, used as vertical and horizontal members, respectively, is the same as in ordinary beams and girders. This assumption, generally made by structural engineers, is far from being true for reasons not possible to set forth in this brief discussion. For those interested in the subject, reference is made to treatises on the Theory of Elasticity.

Moisture

by A. A. Brown

● *Survey in San Francisco Discloses Need for Corrective Measures to Check Termite Activity*

THE detailed inspection of the wrecking of buildings for the approaches to the San Francisco-Oakland Bay Bridge makes possible a number of interesting observations on the termite situation on Rincon Hill and adjoining areas. Of the first 85 pieces of property cleared by the wreckers, 81 were found to be infested by damp wood or subterranean termites, powder post beetles, and fungi. In a number of instances both species of termites and beetles were found in the same property.

On Rincon Hill, where rock is at or near the surface, the damp-wood termite is predominant, and has done extensive damage; while in the sandy soils to the south and west of Rincon Hill the subterranean termites appear to predominate. In every case fungi has been found associated with both species of termites.

The part played by available moisture from any source in the spread and damage caused by termites is of prime importance to those owning property, and to architects and engineers responsible for the building of new edifices.

In the construction of buildings we have made available to these insects an unlimited food supply in the form of wood and its products. The next most important element for the colonizing pair is moisture. In these wrecked buildings we find that leaky pipes, leaky roofs, leaky plumbing fixtures, or wood siding that is not weather tight, has played an important part in making possible the establishment of termite colonies, particularly by the damp-wood termites, where there is no apparent ground connection. We have found infestations where the attack by the damp-wood termites centered in the ceiling of the third floor, apparently due to a combination of leaky siding and leaky roofing. In one such instance the destruction of supporting ceiling joists and studding was almost complete.

In another instance the center of attack was the toilet bowl on the second floor of the building. Sweating joints apparently provided sufficient moisture for the establishment of the royal pair, and once established these insects are capable of maintaining moisture conditions satisfactory to the development of the colony with little regard to outside moisture conditions. In another instance a leaky hot water tank supplied the needed moisture.

The importance of moisture in its relation to termite damage is well illustrated by the extensive damage being done to store fronts. The fact that so many store fronts are found to be infested with termites is

probably due to the accumulation of moisture from frequent washing of windows and the hosing of sidewalks. More often than otherwise there is a construction joint between the concrete sidewalk and the floor slab at or near the store front. The importance of these construction joints should not be underestimated. The recent termite infestations of the fireproof State Building in the Civic Center was due to the entrance of termites through the construction joints in the concree floor.

San Francisco is a city that is built very compactly, with little or no space between structures. The buildings are generally constructed to within an inch or less of the lot line, leaving a very small space between structures. It is impossible to clean these small spaces between adjoining buildings, and windblown refuse very commonly accumulates. When one building extends somewhat above the other, as is frequently the case, driving rain, striking the side of the higher building, runs down between these structures and creates a condition of moisture favorable to the development of termite colonies. In constructing adjoining foundations, the wood forms are commonly left in place as the salvage value of this lumber does not pay for its removal. This provides direct ground contact, and conditions favorable for the development of termite colonies.

In the case of fireproof concrete buildings, the form work is frequently left in place between two such adjoining structures. Termites colonize in this form lumber and enter the concrete building through holes left by tie-wires or form-spacing blocks, or cracks which may develop, and at times have done extensive damage in Class B and Class A structures. Another very common source of termite infestation comes from the use of untreated wood flooring laid on untreated wood sleepers embedded in concrete in ground contact.

It is our purpose in conducting the San Francisco Termite Survey to tabulate so far as possible not only the record of infestation of structures by wood-destroying insects, but also the cause and source of trouble.

The peak of the spring swarming of termites in San Francisco was experienced Monday, April 8th, following heavy rains over the week end. The alates have been emerging from colonies during the latter half of March and the month of April with the greatest number visible at any one time on April 8th. The spring mating season comes near the end of the heavy winter rains. Moisture conditions are then favorable for the survival of the colonizing pair. Observations made at this time indicates that termites are widely distributed in San Francisco buildings.

Bridge

by Glenn B. Woodruff, Chief Designer

● *San Francisco-Oakland Structure Will Have a Capacity of 25,000,000 Vehicles and 50,000,000 Inter-urban Passengers per Year*

THROUGHOUT the development of the project the design of the San Francisco-Oakland Bay Bridge has presented many most interesting problems, ranging from the general ones of location and economics to those of the details of connections. For many of these problems no precedent existed, so that their solution required original investigation.

The first problem in the design of any structure is that of location. Fortunately, in this case, no necessity of balancing the merits of alternate locations arose—all considerations were in favor of the one that has been adopted.

In San Francisco it was desirable to land either on Rincon Hill or Telegraph Hill, to reduce the cost of the approach structures. The Rincon Hill location is the better of the two, inasmuch as the street system south of Market Street is better arranged to handle traffic. It avoids the necessity for Peninsula traffic and heavy industrial traffic to traverse the San Francisco business center.

On the east side of the Bay, it gives through traffic an opportunity to choose such thoroughfares as the East Shore Highway, the Moss Avenue and Tunnel routes by which the congestion in the business centers of the East Bay cities may be by-passed. For through traffic, this location also obviates any necessity for an additional crossing across the Oakland Estuary.

Most of those present are familiar with the opposition between 1920 and 1930 to the project, on the part of the Army and the Navy. The present location was the most suitable to the military authorities of any north of Hunter's Point in that it misses the two general anchorages and the naval anchorage.

The foundations on this project involved unprecedented depths. Even greater depths, resulting in increased costs, would have been encountered at any other location.

General Controls of Design

With the location decided, there were several general controls which required consideration in studying the various span layouts.

Our estimates of traffic and of the revenues that might be obtained therefrom set upper limits for total cost of $65,000,000 for a bridge with vehicular facilities only and of $80,000,000 for one including provisions for interurban traffic. From the start, therefore, no proposal involving greater expenditures could be considered.

The military members of the Hoover-Young Commission warned that only one transbay bridge would be permitted north of Hunter's Point. In accordance with this idea, it was considered advisable to make more generous provisions for future increase in traffic than would otherwise have been necessary.

*Paper read before the Structural Engineers Association at the Engineer's Club, San Francisco, April 9th.

Among the first steps in the design was the determination of the facilities to be provided and the determination of the bridge cross-section. The bridge was being built primarily for vehicular traffic. After a study of rapid transit in other localities, the Engineers have always been certain that the best interests of the community demanded electric interurban trains across the bridge. The question of providing for transcontinental trains was carefully considered. An analysis developed that this traffic was insufficient in amount to warrant the extra expenditure that would be necessary to provide for Pullman cars, to say nothing of the motive power that would have been necessary to haul them up the 3 per cent grades. An investigation was made of operating the new light-weight equipment across the bridge, but, even in these trains the weight on the truck under the motor is very high.

The lateral stability of a bridge demands a certain ratio of width to length of span. Therefore the span layouts and cross-sections required simultaneous study. Of all the cross-section investigated the double-deck design had so many advantages that it became advisable to adopt it, even though this might have involved some sacrifices in span layout.

The capacity of the bridge is estimated at 25,000,000 vehicles and 50,000,000 interurban passengers per year. The latter figure is based on a seat to every passenger.

Design Specifications

At the outset of the design we adopted the principle that no methods nor materials that had not been successfully used on other projects were to be used. There have been few exceptions to the rule. We also adopted the principle of designing for the heaviest probable loadings, and applying high units to the resulting stresses.

The principal steels and unit stresses we have used are as follows:

	Ultimate Strength (minimum)	Unit Stress
Medium carbon	62,000	22,000
Silicon	80,000	28,000
Nickel	90,000	34,000
Heat-treated eyebars	80,000	34,000
Cable wire	220,000	82,000

These unit stresses are applied to the sum of live and dead loads. When wind or other lateral forces are added, an additional 10 per cent is permitted. An increase of 25 per cent is permitted when secondary stresses are considered. A 40 per cent increase, bringing the unit stress to 90 per cent of the yield point, is permitted when earthquake stresses are included.

These unit stresses are at the upper limit of prudence. Certain precautions have been taken throughout the design to justify their use. The assumed live loads are probably greater than the bridge will ever be called upon to sustain. In calculating dead load stresses, great care has been taken to accurately estimate the weights of metal. In some cases the ordering of material was held up awaiting the calculation of weights from the detail drawings. After including all probable weights, an excess dead load of 1000 pounds per lineal foot of the bridge was arbitrarily added.

Our main structural material has been silicon steel. Carbon steel was used only for bracing, light floor members and details. Nickel steel has been used in the cantilever where the addition of weight increased the stresses very rapidly. It was also used in the plate assembly at the center anchorage, where, to avoid encroaching on the roadway clearances, all sections had to be as compact as possible.

Heat-treated eyebars have been used for all members subject to heavy tension, with the exception of the San Francisco and

Yerba Buena anchorages where, to reduce the elongation, so as to reduce the number and size of cracks in the concrete encasement, medium carbon steel bars were used.

As a further justification of the high unit stresses, all possible precautions were taken throughout the fabrication. All sheared edges, except in minor details, were planed. All punched holes were reamed. No punching at all was permitted in nickel steel.

Although the upper deck is intended for passenger vehicles, the floor has been designed to carry a ten-ton truck at any point, or six lines of six-ton trucks. The lower deck has been designed for three lines of thirty-ton trucks, and the two lines of seventy-ton interurban cars. The effect of the load on the entire bridge is represented by a load of 7000 pounds per lineal foot of bridge plus concentrations of 150,000 pounds for chord stresses, or 260,000 pounds for web members. On account of unsymmetrical loading, four-sevenths of this load is carried by the south truss. The dead load of the floor system is 9050 pounds per lineal foot of bridge.

Design of West Bay Crossing

Since the West Bay Crossing consists of the two suspension designs, the general problem was the design of a conventional suspension bridge. The San Francisco backstay makes the west half more flexible than the east, so that there are some differences in stresses. The detail design is the same except for the difference in the cable bents at Pier 1 and the Yerba Buena Anchorage and that tower 2, by reasons of greater deflections, required heavier sections than tower 6.

In spans of this length the effect of the concentrations become rather small. Furthermore, it appeared most improbable that any one span would be completely loaded with no load on adjoining spans. An unbalance load of 3000 pounds per lineal foot of truss was therefore chose for the design of the stiffening trusses and towers.

Tower Design

In some respects the designer of a suspension bridge has little chance for ingenuity. The cables are merely a bundle of wires or wire ropes. The anchorages are merely masses to hold the cables, or else, tunnels into rock. The stiffening trusses are of comparatively light construction when compared to the span. So, when the designer reaches the tower, there is the temptation to let his imagination run wild.

All major suspension bridges, previous to the Williamsburg Bridge across the East River, had masonry towers. The cables passed over saddles on top of the towers, the saddles being supported by rollers. The rollers became full of dirt and rust, and ceased to function, with the result that, under extreme loading conditions, the cables reeve through the saddles. The Williamsburg Bridge towers were built of steel, but the roller detail was retained. The designers of the Manhattan Bridge conceived the idea of securing the cables to the towers and letting the towers flex so as practically to equalize the horizontal component of cable stress at either side of the tower.

The columns of a tower must therefore be sufficiently flexible that the stresses resulting from the movement at the tower tops are not excessive. It must be sufficiently rigid to form an adequate column to support the vertical loads.

As an example of tower design the processes used in designing tower 2 will be briefly described. At the start of the problem the known values are the vertical cable and stiffening truss reactions and the total movement at the top of the tower. Sections of the tower are assumed. It is then possible to calculate the horizontal force

that must be applied to the top of the tower which, in conjunction with the other forces acting, will produce the known deflection. This force is actually the difference in horizontal pull of the main cable on the two sides of the tower. In all cases it is so small as to have no appreciable effect upon the structure as a whole. With all forces acting on the tower known, the unit stresses are determined. The assumed sections are then revised to permit a better distribution of the stresses, and the calculations repeated.

To gain lateral stability, the towers are battered. In addition, the bracing was made very heavy, both on account of strength requirements, and for appearance. When vertical loads are applied the tower deforms. This deformation induces bending in both the bracing and the tower legs. These stresses were calculated and the calculations checked by model analysis. These calculations were based on the tower having its true geometrical form before loading. In so far as practicable, we put reversed bending into the members during erection.

Earthquakes

There would probably be no better way of starting an argument before the present audience than to go into details concerning the calculations for seismic forces. We would probably all agree that the forces are dynamic and hat to simplify calculations we assume an equivalent static force. Throughout our design we have used a factor of 10 per cent of gravity.

All investigations within this field divided themselves very logically into two parts: namely, the substructure and the superstructure. The former represented isolated masses of very rigid construction, while the latter is comprised of joined elements which are generally quite flexible.

Earthquake analyses of the piers was based upon the assumption that the entire mass was accelerated the full amount, which, of course, created a horizontal force equal to 1/10 of the mass and acting at the center of gravity. In addition, it was presumed that the pier would have to plow shiplike through the surrounding water and upper strata of soft mud. Finally, the superstructure contributed certain horizontal forces due to earthquake acceleration. These forces were combined with the weights acting vertically to determine stresses within the piers and loads upon the supporting material.

The flexible superstructure presented was a far more involved problem. Each type of structure was found to possess characteristics of its own, and to require individual treatment. It is not possible to describe all of these investigations this evening, but our procedure in conjunction with the suspension bridge will give the general picture. A shock transverse to the bridge axis will cause the towers to be accelerated throughout their height by the full amount, since they are very rigid in this direction. The ends of the trusses and the cables where they loop over the towers will likewise suffer the full movement. However, these latter elements are long and highly flexible and the movement will decrease more or less rapidly as the distances from the towers are increased. These decreased movements are reflected in similarly decreased horizontal forces.

A shock parallel to the bridge axis acts in quite a different manner. In this direction the towers are very flexible and the main cables will serve to guy their tops in position against any movement. The actual displacements will hence vary from a maximum at the base to a very small and negligible amount at the top. If the expansion joint where the truss links to the tower is not closed at the time of the quake, there can be no transfer of motion to these trusses and hence no forces created by them

or in them. It is possible, however, to have this joint closed, which will mean that the truss will have to be displaced along its length.

Anchorages

In the design of the San Francisco Anchorage, we have followed precedent by supplying a mass of masonry of such weight that the toe pressure is comparatively low, and ample provision is made against sliding. The Island Anchorage also follows previous practice for tunnel anchorages.

The problems at the Center Anchorage were largely those of detail. We knew the maximum unbalanced live load cable stress and also the maximum stress in the cables if the bridge on one side of the anchorage were to fail. The general design was to provide a masonry block of such dimensions and weights that the resulting forces might be carried to rock, with reasonable pressures.

The first detail to be investigated was that of anchoring the cable to the masonry. We studied bending the cable over steel bents and conecting it to eyebars buried in concrete below the lower deck. We investigated continuous cables through the center anchorage and designing a clamp that would take the unbalanced pull. In all our studies we were limited to a detail not over six feet in overall width, otherwise we would have encroached on the roadway widths. The cables terminate in a strand shoe assembly which follows usual practice except that, to conserve width, it is made high and narrow. All balanced pulls are transferred from one cable to the other through the heavy plates. Unbalanced forces are taken by the A-frame. The shoes of this frame are anchored by vertical eyebars. These bars are prestressed with a load of 3696 tons per shoe so that, for any live load condition, there is always a positive reaction on the masonry. The horizontal component is taken by bearing on the concrete. The entire A-frame is to be encased in concrete, heavily reinforced.

The continuous spans between the San Francisco Anchorage and Pier 1 are comparatively short. The most interesting feature is the floor framing which was necessary to clear the cables.

At Pier 1, west of the Embarcadero, the cable turns through a small angle so that a cable support is required. Simplicity of detail as well as the desire to keep the weight of supporting steel to the minimum made it desirable to place the foundation for this bent at the same level as the truss bridge seat. The cable support has a movement of 6½ inches each way from normal. In such a short column, this movement could not be provided by flexure, so that the member was pinned at the base.

At the Yerba Buena Anchorage the cable has a similar, though somewhat greater, change of angle. The movement is comparatively small, and is taken by flexure of the bent.

Cables for West Bay Crossing

To digress for a moment into construction, the catwalks for the west half of the West Bay Crossing are now being constructed. The supports for each walk are four 2½ inch wire ropes, each having a strength of 480,000 pounds. The walk consists of two layers of wire mesh, the lower one chain fencing, the upper hardware cloth. This is the first use of this construction. It was chosen to reduce weight, to reduce the resistance of the walk to the wind and to eliminate fire hazard. Lateral stiffness is provided by the cross walks, three in the center span and one each in the side spans and the backstay span. The system is further stiffened by the storm

cables, one-inch wire ropes which have an inverted curve and will be attached to the towers and anchorages at as low levels as permitted by clearances.

At intervals of 230 feet, gallows frames will be constructed. These will support the haulage system by which the spinning wheel is operated. There are to be two wheels per cable. A bight or, possibly two bights of wire will be placed on the wheel at the San Francisco Anchorage. The wheel will travel to the Center Anchorage at a rate of 600 feet per minute, the wire taken off, the bight or bights put on from a reel at that point, and the reverse trip started.

The cable is laid up in 37 strands of 472 wires each, or a total of 17,464 wires. After compacting, it forms a circle of 28¾ inches in diameter. After compacting, the cable bands will be placed, and the suspender ropes put into position.

The trusses will be assembled into sections 60 feet long and hoisted into position in a unit. For the west half of the bridge the upper deck floorbeams and most of the lower deck stringers and bracing will not be placed at this time. This "stripping" of the units was necessary in order that the unbalanced pull on the Center Anchorage may be kept to 6,600,000 pounds per cable, which is the stress due to the cables alone. The erection of the west suspended structure can proceed while the east cables are being spun, this unbalanced pull being the governing limit.

Upon the completion of the steelwork, the roadway will be paved and the cables wrapped. This latter operation consists of giving the cables a continuous serving of No. 6 wire.

East Bay Superstructure

While the West Bay suspension spans have received more publicity, the 1400-foot cantilever span in the East Bay contains the heaviest truss steel in the entire project. In length of span it is the third longest cantilever in the world. In weight of steel per foot of span it is exceeded only by the Quebec Bridge.

The structure differs from the conventional cantilever in that there is no provision for expansion at the end of the suspended spans. This change was made in order that the entire structure might be anchored, in a longitudinal direction, to Pier E-1. As a result, the calculations for the analysis of the lateral system became rather interesting; the system is continuous over the three spans and has fixed ends at Pier E-1 and supports at Piers E-2, E-3 and E-4, which are subject to transverse deflection.

To a very large extent the primary stress calculations were a matter of routine. The secondary stress calculations were somewhat more complicated but relatively unimportant, since secondary stresses have been kept to comparatively low values by the use of pins at critical points and by careful shopwork. The comparatively long panels also contribute to low secondaries. The principal problem in the design was to secure simple and adequate details.

The other spans in the East Bay Crossing are simple truss spans. The principal departure from usual practice is the use of steel bents, rather than concrete piers. The purpose of this was mainly to keep the loads on the foundations to a minimum.

Steel Details

No step in the design of any structure is more important than the proper proportioning of the details. Throughout the design every detail has been studied in an effort to simplify the connections, make all details accessible for maintenance, reduce the weight of detail material as much as possible, avoid large riveted joints, and avoid details that have given trouble on other structures. Some of these details may be mentioned:

1. *Box members.* Throughout the design, box members or solid web "I" sections rather than laced sections have been used wherever possible, without considerably increasing the weights. This has the advantage of reducing the weight of detail material and also cutting down on maintenance. Lacing bars and their connections are particularly vulnerable to corrosion.

2. *We have tried to avoid excessively large riveted joints.* Standard bridge specifications are based on the results of tests of very small joints and heavy bridge practice has extrapolated to a very considerable degree. To avoid these uncertainties we have made a very free use of pinned connections for the larger joints. In this connection we are planning a series of tests, to be conducted at the Universities of California and Illinois, on riveted joints.

3. *Expansion bearings.* No detail in bridge construction has been more difficult to maintain than expansion bearings. In this structure, we have, as a rule, avoided these details by providing for expansion by flexure of columns.

4. *Access for Inspection and Maintenance.* The proper inspection and maintenance of any structure is greatly facilitated by proper facilities for access. Each cell in the towers may be reached by a ladder. We are providing movable maintenance bridges under each of the west bay spans, and also on the 1400-foot cantilever. We are providing ladders to reach all piers.

Throughout the work, the fabrication processes have been closely correlated with the design. To reduce the secondary bending in all transverse frames, all floorbeams have been milled on such a bevel that the connections will be truly vertical under full dead plus half live load. In a similar manner, all trusses have been cambered so that theoretically there will be no secondary stress under the same loading conditions. We are checking the extent to which this condition has been attained by an extensive series of strain gage readings.

Concrete Structures

Most of the concrete used so far has been in the foundations, the design and construction of which have been widely published. We are just starting construction of the San Francisco Approach, which contains some rather heavy concrete rigid frame structures.

The structure between the Fifth Street Terminal and Rincon Hill is a succession of rigid frames. Between the streets there are twelve 67'11" spans. The streets are crossed by 93'4" spans.

Much thought was given to the problem of expansion joints. Our first thought was to cut at the center of the alternate spans. This would have made the system highly indeterminate and might have given trouble in case of any foundation settlements. We therefore adopted the expedient of a suspended spans, which average about 40 feet in length. One end of these spans is fixed, the other slides on bronze bearings. In several cases on other jobs eyebar hangers have been used, but the detail adopted seemed to have the advantage of simpler maintenance.

The bridge is a project of the State of California acting through the California Toll Bridge Authority, of which Governor Merriam is Chairman. The work is being designed and built by the State Department of Public Works, of which Earl Lee Kelly is Director and C. H. Purcell, Chief Engineer. The financing consists of a loan of $61,400,000 from the Reconstruction Finance Corporation and $6,600,000 of State Highway funds. The facilities now under construction provide for highway facilities only, and will require not over $56,000,000 of the RFC loan. The projected interurban facilities will add $15,000,000 to the project, making the total financing $78,000,000.

FIFTY YEARS OF ARCHITECTURE

The following is a brief synopsis of an article in the May number of *Good Housekeeping* by Helen Kones. Her subject: "Architecture — Glimpses Through Five Decades", has a professional interest:

1885

It was an ugly period in architecture as well as in interior arrangements, furniture, and furnishings. The Victorian influence, which was still felt, was in its decadance, and many were the houses, large and small, that were covered with gingerbread ornamentation; made still more unattractive by unsightly porches which darkened the rooms. . . . Many fine old Colonial houses, as well as those of the Classic Revival, though still standing, were passed by as "old-fashioned." The Romanesque and the Victorian influence was rampant. Changes come slowly in architecture.

1895

There is little change as yet, though a momentous event had taken place, the Chicago Exposition of 1893, the influence of which was to sweep the country and bring the return of the Classic tradition to architecture.

1905

Slowly but surely time brought change. The beautiful classic architecture of the Chicago Exposition, followed by The Pan-American Exposition at Buffalo in 1902, led the way from coast to coast—except for Florida and the Southwest—to a tremendous swing to Classic architecture, the tradition and the proportions of the Greeks. Steel construction brought new marvels of building. The skyscrapers of New York sprang up. . . . . Better trained architects, the seeking of culture, the motor, the telephone, all played their parts in creating better architecture as the twentieth century dawned. Simultaneously came the improvement in domestic architecture and the revival of the American Colonial.

1915

A war-torn world. But preceding it, the revival of fine Eighteenth-Century architecture had been in full swing. The quest of the antique was intense. . . . There was a more limited understanding of interiors of this period, but the influx of fine English antique furniture brought big prices and created a widespread knowledge. Building had decreased. Our energies and our industries were commandeered to win the war. But knowledge was being assimilated, taste improved. Houses of stucco came into more general use. Architects returning from abroad had become imbued with the beauty of the English cottage, the French manor house, and the Italian villa, and reproduced them for our countryside.

1925

The American Wing of the Metropolitan Museum of Art in New York was opened in November, 1924. It is hard to estimate its tremendous influence. . . . Paneling became more general, and interior architecture suited to the house was studied and adopted. The Colonial house, "Americana" were a tremendous vogue. . . . In Florida and California during the same period architecture and furnishing of Italian and Spanish inspiration had been brought to great beauty. Extensive building of fine town houses and elaborate country places was going on all over the country, including those of the Sixteenth- and Seventeenth-Century English, as well as the French, Italian, Spanish, and Georgian types—and something else being talked of as "modern."

1935

Shortly after the war, particularly in France, Germany and Sweden, a new order of building was beginning. Ornamentation was discarded. New lines, colors, materials were called "modernistic," Modern. The Paris Exposition of 1925 gave impetus to the new movement, not only in painting, but in all the decorative arts—furniture, fabrics, glass, and metalwork. The tenets of this faith have spread. To many it is without beauty, to others it spells both beauty and progress. In architecture it has cleared away over-ornamentation. . . . This was also a time when there was a "modern" spirit in the air. The straight lines of the building of a century ago are in harmony with today's more radical ideas. Functionalism, utilitarianism, will hold their place, giving way to the added beauty man demands. Science will bring us prefabricated houses—and mechanical marvels we have yet to know.

SAN MATEO HOMES

Henry H. Gutterson has prepared plans for the first unit of 60 homes to be built by the Geo. W. Williams Co. in San Mateo.

« « « « With the Architects » » » »

STATE BOARD ELECTS

The California State Board of Architectural Examiners held its annual meeting in San Francisco, April 10 and 11. All members were present with the exception of A. M. Edelman, secretary, who has been ill for many weeks. Officers were elected as follows:

President, Louis J. Gill, San Diego; vice-president, Warren C. Perry, San Francisco; secretary, C. J. Ryland, Monterey; assistant secretary, A. M. Edelman, Los Angeles.

Other members of the board are: Harold E. Burket, Ventura; Harold C. Chambers, Los Angeles; G. Stanley Wilson, Riverside; Harry J. Devine, Sacramento; Chas. F. B. Roeth, San Francisco.

YACHT HARBOR

H. J. Brunnier, C. E., Sharon Building, San Francisco, is preparing plans for a bulkhead wall, dock, etc., for the Vallejo Yacht Harbor. Mr. Brunnier is also making a survey of school buildings at San Leandro which need structural changes to conform with the state earthquake law. Bids are being taken for structural changes to a group of high school buildings at Redwood City from plans and specifications prepared by Mr. Brunnier.

BERKELEY ARCHITECT BUSY

John Hudson Thomas, 31 Norwood Street, Berkeley, reports completition of plans for an English home on the Coventry Road, Berkeley, for Mrs. Lucille Kirwan of 1918 San Antonio Avenue, Berkeley. Mr. Thomas has also completed drawings for alterations and additions to the home of Stuart E. Daggett, 1427 Hawthorne Terrace, Berkeley.

BERKELEY RESIDENCE

Theodore A. Ruegg, 1515 Taylor Street, Berkeley, is completing working drawings for an English dwelling on San Lorenzo Street, Berkeley, for Sherman W. Gibbs. Mr. Ruegg is revising plans for a house on Hilgard Street for Mr. Von Ellsworth.

REINFORCED CONCRETE SCHOOL

Plans are being completed by Masten & Hurd, 233 Post Street, San Francisco, for a two-story reinforced concrete grammar school building at 22d and Bartlett Streets, San Francisco, for the City and County of San Francisco. Walter Huber is the engineer. Cost is estimated at $180,000.

ENGINEER TO BUILD HOME

L. H. Nishkian, 525 Market Street, San Francisco, is having plans prepared for a $12,000 Mediterranean style dwelling to be built on his property on St. Germain Avenue, west of Twin Peaks Boulevard, San Francisco. A commanding view of the entire city is had from this point.

DEPARTMENT STORE

Montgomery Ward & Company will build a three-story and basement department store building at Ninth and K Streets, Sacramento, from plans by the construction department of the owner and Benjamin G. McDougall of San Francisco.

$12,000 ALTURAS HOME

Ralph D. Taylor, architect, 716 Court Street, Susanville, is preparing working drawings for a two-story frame residence to be built in Alturas, Modoc County, for Dr. P. W. Kenney. The house will be air conditioned and will cost $12,000.

BAYWOOD RESIDENCE

Plans have been completed and bids taken for a one and one-half story residence at Baywood, San Mateo County, for Fred Wising. There will be eight rooms. F. Frederic Amandes is the architect.

HOTEL MODERNIZATION

George C. Sellon Company, Sacramento, has prepared plans for modernizing the Windsor Hotel at 8th and J Streets, Sacramento.

CLAREMONT PINES RESIDENCE

C. S. Morse will build a home in Claremont Pines, Oakland, from plans by E. Goeffrey Bangs, 411-30th Street, Oakland.

CHARLES W. SAUNDERS, ARCHITECT

Charles W. Saunders, architect, and one of the charter members and first secretary of the Washington State Chapter, A.I.A., died March 13 at Seattle. He was 77 years of age, born in Cambridge, Mass., and had made his home in Seattle nearly half a century.

Mr. Saunders had charge of the architectural work for the University of Washington when the first buildings were erected on the present campus. In the downtown area his architectural achievements include the National Bank of Commerce and the Lumber Exchange Building, also numerous apartment houses.

Mr. Saunders for ten years served as a Washington state representative from the 45th District, taking a leading part in the development of the state park system. He was also a former member of the Seattle park board. His last work was the design of a pedestal at the north entrance to the University campus.

"DREAM HOUSE" IS MOVED

Seattle's "Dream House", designed by George W. Groves and exhibited last fall at Metropolitan Center, Fourth Avenue and University Street, by the Seattle Trust Company in cooperation with the Federal Housing Administration, is now resting snugly in a permanent location at 5774 57th Avenue South in the Seward Park District. The owners of the dream home, Mr. and Mrs. D. W. Hergert, are now enjoying all of the most modern household appointments in a beautiful setting which includes a splendid view of Lake Washington and the surrounding country.

GRANTED ARCHITECTS LICENSE

Victor N. B. Jones, junior member of the McClelland and Jones, Seattle architectural firm, specializing in store fronts and interiors, recently obtained professional architect's licenses in Oregon and California. These were necessary in order to cover the scope of the firm's activities, which extend all along the Pacific Coast. Mr. Jones returned to Seattle early in April after spending a month in Portland and San Francisco.

ARCHITECT ON SCHOOL BOARD

Walter T. Steilberg, architect and structural engineer, has been elected a member of the Berkeley Board of Education to fill the unexpired term of a member of the board who resigned.

MR. STONE A BUSY MAN

William J. Stone, architect of Altadena, has been appointed a member of the executive committee of the Better Housing Bureau in Altadena, serving as chairman of the planning committee and chairman of a special committee to report on contractors and material men for this organization.

Mr. Stone is also president of the West Altadena Improvement Association, a member of the Community Council; member of the Board of Control of the Recreation Building at Altadena, and several other minor committees.

When not working as an instructor in architecture at Pasadena Junior College, or serving on the various bodies mentioned above, Mr. Stone attends an occasional architects' meeting.

Mr. Stone is very optimistic for the future of architecture. He feels that the government's entrance into the picture will materially improve the building situation.

GRANTED CERTIFICATES

The State Board of Architectural Examiners, Southern California District, has issued certificates to practice architecture in California to the following: Robert Evans Alexander, 816 S. Lake Street, Pasadena; Charles Henry Holmstrom, 507 California Bank Building, San Diego; Miss Edla Muir, 246-26th Street, Santa Monica; Thomas B. Mulvin, 1770 N. Vermont Ave., Los Angeles; Walter Chester See, 347 Argonne Avenue, Long Beach; John D. Winn, 917 Stanford Street, Santa Monica. Harley G. Corwin, 728 S. Detroit Street, Los Angeles, was issued a provisional certificate.

SEATTLE HOUSE COMPETITION

The residence design competition, sponsored by the Puget Mill Company, Seattle, ended April 22. Five of Seattle's leading architects participated. They were Arthur L. Loveless, Edwin J. Ivey, William J. Bain, George Wellington Stoddard and J. Lister Holmes. Charles H. Alden, architect with office in the Arcade Building, served as honorary advisor.

HIGHER RATING

Higher rating as School of Architecture is given the Department of Architecture, University of Washington, in a recent order issued by the Board of Regents upon recommendation of President Lee Paul Sieg. Prof. Harlan Thomas has been promoted to the position of Director of the School.

FLAT BUILDINGS

Richard R. Irvine, 3431 Market Street, San Francisco, has awarded a contract for construction of three frame and stucco flat buildings on the east side of 23d Avenue, north of Geary Street, San Francisco, for Francis L. Boisson. The same architect has prepared plans and contract has been awarded for a flat building to be built on the west side of Fillmore Street, south of Retiro Way, San Francisco, for Frank Luchi, and five two-story frame and stucco flat buildings on the west side of 25th Avenue, north of Fulton Street, San Francisco, for T. I. Strand.

SALVATION ARMY BUILDINGS

Douglas D. Stone, 110 Sutter Street, San Francisco, architect for the Salvation Army, is preparing working drawings for remodeling the Army headquarters at 115 Valencia Street, San Francisco, into a training school. Mr. Stone has also been commissioned to prepare plans for a group of orphanage buildings for the Army in Visitacion Valley. Preliminary plans have been prepared for remodeling the Walkathon Building at Eddy and Jones Streets, San Francisco.

BRICK VENEER RESIDENCE

A. W. Carlson is the owner of a $40,000 brick veneer residence, construction of which is under way at Piedmont from plans by Messrs. Williams & Wastell, 374 17th Street, Oakland. The same architects have awarded a contract for an English style residence in the Rockridge District, Oakland, for Howard Ballinger.

GARDNER A. DAILEY BUSY

New work in office of Gardner A. Dailey, 210 Post Street, San Francisco, includes a twenty-room residence at Woodside for George Hotaling, and a two-story brick veneer residence in Atherton for Arthur Kates. Mr. Dailey is also busy on other work for clients in the Peninsula District.

BERKELEY STORE BUILDING

Ray F. Keefer has prepared plans for a one-story Class C store building to be built on Solano Avenue, Berkeley, for Henry Schwartz. Gerald Fries is the engineer.

FRESNO BUILDING

Allied Architects of Fresno will design a two-story administration building for the Fresno Board of Education, estimated to cost $80,000.

PERSONALS

Gwynn Officer, architect, has moved his offices from the Hotel Claremont, Berkeley, to the Whitecotton Building, Allston Way, Berkeley.

Charlie H. Salyers has moved his office to 609 Commonwealth Building, San Diego.

Richard G. Lytel, architect in the Securities Building, Seattle, is seeking catalogs on millwork, sheet metal, hardware, plumbing fixtures, tile, lighting fixtures and heating equipment.

CHESTER H. TREICHEL BUSY

New work in the office of Chester H. Treichel, 696 Cleveland Avenue, Oakland, includes a residence in Oakmore Highlands for C. E. Batcheller, a house for Norman S. Menisee in Redwood City and two houses for Hufschmidt & Whalen in Berkeley.

SALINAS THEATER

Remodeling of the Fox-West Coast Theater at Salinas will shortly be under way from plans by A. A. Cantin, 557 Market Street, San Francisco. Plans are also being completed by the same architect for remodeling the Fox Theater in Vallejo and for a reinforced concrete shop building at Kentfield, Marin County.

BERKELEY RESIDENCE

Leonard H. Ford has completed drawings for a two-story, Spanish style residence to be built on Spruce Street, Berkeley, for N. B. Douglass, formerly of the Marshall, Stearns Wall Bed Company. Mr. Douglass is building for investment.

ALTERATIONS TO LODGE

Dodge A. Riedy, Pacific Building, San Francisco, has made plans for extensive alterations to the brick lodge building on Valencia Street for the First Serbian Benevolent Society. Nearly $20,000 will be expended on the improvements.

ENGLISH RESIDENCE

Messrs. Shaw & McCool, architects at 9 Geary Street, San Francisco, have completed drawings for a two-story, English-style residence to be built on the Tunnel Road, Berkeley, for Marcus A. Peel.

PITTSBURG LODGE BUILDING

Dragon & Schmidts, architects in the Whitecotton Building, Berkeley, are preparing plans for a new home for the Pittsburg Lodge of Elks, estimated to cost $15,000.

SOUTHERN CALIFORNIA CHAPTER

Housing was the principal topic of discussion at the April 9th meeting of Southern California Chapter, American Institute of Architects, at the Clark Hotel, Los Angeles.

Samuel E. Lunden made a report on the progress of the National Housing Exposition building under construction near Beverly Boulevard and Fairfax Avenue.

Approval was given to a suggestion made by the Los Angeles Chamber of Commerce, in the form of a letter addressed to the Chapter, calling attention to the necessity of amending regulations of the Federal Housing Act for loans under Title 2, in order to get tentative commitments on preliminary plans.

Secretary Eugene Weston, Jr., read a copy of a letter sent to each Institute Chapter, with which was enclosed a copy of the local Chapter's program for competitions in selecting architects for public building projects.

Southern California Chapter, A.I.A., helds its regular monthly meeting at the Clark Hotel in Los Angeles, May 7. The business session was followed by a report and discussion of the unification committee. Lloyd Aldrich, Los Angeles city engineer, was the speaker of the evening.

WASHINGTON STATE CHAPTER

At the April 4th dinner of Washington State Chapter, members participated in a discussion of the proposed ordinance for the City of Seattle to require an architect's license for the designer of all building projects costing $300 or more as a prerequisite for the issuance of a building permit. President Robert F. McClelland directed the proceedings while B. Marcus Priteca outlined the work being done on the measure at the city council sessions.

Professional problems were mentioned for presentation to the 1935 national convention of the Institute to be held May 22 to 25 at Milwaukee, Wisc. Suggestions were considered for nomination for new regional director for the Rocky Mountain - Pacific Northwest division, including Oregon, Washington, Idaho, Montana, Utah, Wyoming and Colorado.

AMERICAN SOCIETY CIVIL ENGINEERS

The 169th regular meeting of the San Francisco Section, American Society of Civil Engineers was held on Tuesday evening, February 19. The local sections of the American Institute of Electrical Engineers, the American Society of Mechanical Engineers, and the Structural Engineers Association, joined with the civil engineers for this meeting. One hundred seventy-five members and guests attended the dinner meeting at the Engineers' Club, 206 Sansome Street, and three hundred and fifty members and guests attended the technical address held at the Pacific Gas & Electric Company Auditorium, 245 Market Street, San Francisco.

At the dinner meeting President Hyde introduced Professor Stephen Timoshenko and the officers of the four societies. The Section did not attempt to transact any business. However, President Hyde announced that fifteen committees had been appointed and all had held meetings to plan the year's work. The dinner meeting adjourned at 7:30 o'clock.

At 8 o'clock President Hyde called the meeting to order and introduced Professor Stephen Timoshenko, University of Michigan, who gave an address on "Recent Developments in Fatigue Tests of Structural and Machine Parts."

The April meeting was held at the Engineers' Club on the evening of the 16th.

CAST STONE EXHIBIT

An exhibition of cast stone was held May 15, 16 and 17 in Washington, D.C., at the U. S. Chamber of Commerce Building. The exhibition was sponsored by the Cast Stone Institute and included samples, models and other exhibits from cast stone plants throughout the country.

In line with the increasing attention being given to concrete in architecture, the exhibits emphasized the conception and use of cast stone as a distinctive and refined form of concrete. Of special interest was a model wall section showing the use of cast stone as the forms for monolithic concrete walls, the cast stone remaining in place as the exterior finish of the walls. Samples made with surface color-coated aggregates, with manufactured ceramic and vitreous aggregates, as well as many other novel ideas, were used to demonstrate the progress being made in the development of concrete in this particular form.

PRACTICAL DESIGN IN CONCRETE

"Practical Designing in Reinforced Concrete", Part III, by M. T. Cantell of Los Angeles, has just been published. The book contains 230 pages with illustrations and its contents are a description of reinforced concrete and its suitability for various kinds of structures. In detail it covers the design of tall chimneys, dams, arched structures of various types; discusses rigid structures in various aspects, and domes. In the last mentioned group the dome of the B'nai B'rith Temple of Los Angeles is described and illustrated.

STATE ASSOCIATION MEETS

The mid-year meeting of the State Association of California Architects, was held in San Francisco, April 10. The members met jointly with the State Board of Architectural Examiners.

The principal matter of business was pending legislation. Both organizations approved the latest amendment to the Perovich Bill, S.B. 507, and instructed the legislative committee to press the matter for favorable action without delay.

It was decided that the division of the state into Northern Section and Southern Section of architects, served no good purpose and a consolidation of activities under one executive office would strengthen the architects position and prove advantageous in many ways. It was therefore resolved that a committee be appointed to make a study of the constitution and by-laws, for the purpose of amending it at the annual convention to be held in October.

Luncheon was served at the Bohemian Club. Lewis P. Hobart escorted the architects through the various rooms.

Architects in attendance were Messrs.: Harris C. Allen, William I. Garren, Fred H. Meyers, A. Appleton, Lewis P. Hobart, Harry Michelsen, Ellsworth E. Johnson, John Bakewell, Warren Perry, and Albert Evers of San Francisco. Harry J. Devine, Sacramento; Columbus J. Ryland, Monterey; Louis N. Crawford, Santa Maria; G. Stanley Wilson, Riverside; Louis J. Gill, San Diego; Harold E. Burket, Ventura; Robert H. Orr and Harold C. Chambers, Los Angeles; Ben Silver and Mr. Bolton, State Board of Architectural Examiners investigators.

AWARDED 1935 SCHOLARSHIP

At a meeting of the managing committee of the Ion Lewis Scholarship in Architecture on April 13th, Harlow Hudson, graduate of the School of Architecture and Allied Arts of the University of Oregon, now a graduate student at the Massachusetts Institute of Technology, was awarded the 1935 Traveling Scholarship. A stipend of $1200.00 is included in the grant.

Mr. Hudson's record while at the University of Oregon was of high order, both in his scholastic and his professional work. He is a skilled mechanic, a competent artist in line and color, and an excellent draftsman and designer. His work at M.I.T. has concentrated on city planning.

During the Public Works of Art Project in the Northwest, Mr. Hudson served as one of the artists in C.C.C. Camps. It is expected that Mr. Hudson will leave the last of May for Europe, visiting Denmark, Sweden, Norway, Germany, England and France.

R. W. HUNT EXECUTIVE CHANGES

Pacific Coast friends of Fred M. Randlett will be pleased to learn of his promotion to the position of vice president and general manager of the Robert W. Hunt Company, engineers, conducting a national and international engineering inspection, testing and consultation service, with general offices in Chicago. At the same time James C. Ogden, formerly vice president, has been appointed president to succeed C. B. Nolte who has accepted the presidency of Crane Company. Mr. Randlett has been coast manager of the Hunt company with headquarters in San Francisco since 1926 and prior to that was chief engineer of the Water Department of Portland, Oregon. Mr. Randlett is a member of the American Society of Civil Engineers, the American Water Works Association, the American Society for Testing Materials, the Engineers' Club of San Francisco and various other engineering organizations.

M. H. Merrill who becomes western manager at San Francisco has been identified in an engineering capacity with various utility and transportation companies during his long professional career. Since 1919, he has been president of the M. H. Merrill & Company, consulting engineers, and during the last three years has served as consulting engineer at San Francisco for Robert W. Hunt Company. Mr. Merrill is a member of the American Society of Mechanical Engineers, American Institute of Electrical Engineers, and is a registered civil engineer in the State of California.

PROGRESS OF HOUSING CAMPAIGN

Modernization and repair continues to increase at an accelerated rate under the impetus of the program of the Federal Housing Administration.

On April 12, pledges for modernization and repair obtained by the community canvasses active throughout the country reached $344,659,862. This is an increase of $14,500,283 over the previous week's figure. The total funds advanced under the Modernization Credit Plan on the same date amounted to $53,969,065, an increase of $2,063,572 for the week. Individual credit advances by April 12 numbered 128,481, an increase of 6,185 for the week.

Thirteen thousand one hundred and forty-seven insurance contracts were issued to financial institutions up to April 12, entitling them to extend modernization credit under the rules and regulations of the Federal Housing Administration. This represents an increase of 49 for the week. There were 7,008 community campaigns organized or being organized on that date.

CONTRACTOR NOT LIABLE FOR EARTHQUAKE DAMAGE

In the opinion of E. W. Mattoon, counsel for Los Angeles County, contractors are not legally liable for damage by earthquake to school buildings while being reconstructed. The Los Angeles Board of Education, acting in accordance therewith, has approved a recommendation by Secretary H. E. Griffin and Superintendent Frank A. Bouelle that the matter be referred to the business manager and board architect for the purpose of having a provision to that effect incorporated in the building specifications.

This action will settle the question of liability raised by contractors in connection with the school rehabilitation work, those who protected themselves by including the cost of earthquake insurance in their bids claiming they were placed at a disadvantage in competition by other contractors who did not make allowance for such insurance. With a specific clause in the specifications all contractors will bid on the same basis.

By resolution of the board the secretary, on February 25 last, was authorized to request the county counsel for an opinion as to whether or not the board has any liability in connection with possible damage to school buildings from earthquake during reconstruction operations, and as to whether or not the board should incorporate in its specifications any clause concerning responsibility in case of earthquake or other calamity.

The report of Mr. Mattoon, in part, follows:

"In our opinion the contractor who is awarded a contract for the rehabilitation or reconstruction of a school building cannot legally be held liable for the destruction of the building which he is reconstructing if it is destroyed by an earthquake or other force over which he has no control.

"We are of the opinion that the specifications should be modified to contain a clause stating that the district will not hold the contractor liable for the destruction or partial destruction of the existing building which he is to rehabilitate if such destruction is caused by earthquake, defective soil, fire or act of God, resulting from no fault on the part of the contractor."

KAWNEER CATALOG

The Kawneer Company of Niles, Michigan, and Berkeley, California, has recently published for the convenience of architects and engineers, detailed information about their better windows for commercial buildings, residences, ships, airplanes, automobiles, buses and other transportation units. The literature is nicely arranged, size of pages to fit A.I.A. File No. 16-E-1 and profusely illustrated.

ARCHITECTS BANQUET

Northern California Chapter, American Institute of Architects, met jointly with the State Association of California Architects on the afternoon and evening of May 4. This meeting was held in connection with the Biennial Honor Award Exhibit in the San Francisco Civic Auditorium.

After viewing the exhibit, the architects convened in Larkin Hall for a short business session and then adjourned to the Whitcomb Hotel for dinner.

Messrs. Hervey P. Clark and John Davis Young were introduced as new members in the Institute and Wayne B. Hertzka as newly elected to associateship.

A brief discussion was held on the Uniform Building Code.

The proposed revision of the Institute Constitution and its bearing on unification brought forth discussion from various members. Mr. Allen moved that the Chapter request Mr. Moise, its delegate to the convention, to confer with Mr. Orr, delegate of the Association, for information and understanding of the attitude of the Association in this matter. The motion was carried.

With the conclusion of Chapter business, the meeting was turned over to the State Association, and thereafter was presided over by Wm. I. Garren.

The latter presented a resume of Association activities, in which discussion was held upon the legislative program and of architects' services in connection with veteran homes.

Under the latter topic, the understanding with the Veterans' Board was outlined. The motion of Mr. Donovan was unanimously carried, that the program be approved and that Mr. Reimers and the representatives of the Producers Council Club and the Associated General Contractors be commended for the progress made in arriving at an agreement with the Veterans' Board.

The meeting then adjourned to the Whitcomb Hotel, where, after a pleasant social hour, dinner was served.

Guests of the Chapter were the honor award jury, composed of Winsor Soule, Santa Barbara, Roland Coate, Los Angeles and Herman Brookman, Portland. Another always welcome guest was Mr. Austin Sperry, who delightfully entertained the gathering with a group of musical selections.

Each of the guest jurors responded with remarks when introduced by Gardner A. Dailey, who was the host of the evening. Mr. Soule, when called upon, announced the report of the jury and the Awards of Honor with high commendation of the quality of work which was exhibited. J.H.M.

ARCHITECT FAVORS GROUP MODERNIZATION

Group modernization of entire city blocks, in place of the present "retail" program of the Federal Housing Administration, is advocated by D. Knickerbacker Boyd of the Philadelphia Chapter of the American Institute of Architects.

"There are those who assert," Mr. Boyd says, "that too much new housing in any given section of a city will upset the values of older homes in nearby areas. Such a statement, however, at once makes a valid argument in favor of proceeding with such a program. For the older properties will then be in line for modernization, not by each owner as an individual, but by all owners in each block collectively.

"While such a procedure might be but one part of the program in those cities which can offer plans for their development, the block modernization feature can be put into operation in any city, and at once.

"The recent enactment of the President's huge work relief bill will make it possible for certain of our American cities to correct some of the errors of their thoughtless youth through broad programs of rehabilitation. All that would be required would be intelligent selection of locality, capable direction and cooperation of owners.

"After any block was determined upon, a property could be selected and arrangements made with its owner to remodel with private funds or through the Federal Housing Administration loans. This house as it was being improved could be a constant exhibit and afford an inspiration to all other owners in the block and neighborhood.

"To carry out this idea of group modernization, the Federal Housing Administration might inaugurate a new 'block' program, as distinguished from its present 'retail' set-up, whereby individual architects would be commissioned to handle each of the various blocks assigned to them.

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E. K. WOOD LUMBER CO.
No. 1 Drumm St., San Francisco
Los Angeles Oakland

Read about the San Francisco Termite Survey on Page 47 in this issue.

"It appears that property owners and landlords for the most part are loath to spend money for improvements, even though such expenditures would be actual paying investments; but the loss of tenants through competition of better buildings, might do something to stir up phlegmatic or recalcitrant householders.

"All this would bring private funds into play and would put numerous architects to work while at the same time providing the small contractor and sub-contractors opportunities to function and employ building craftsmen. Another fine thing about such a program is that it can be launched at once.

(Please turn to Page 67)

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Automatic AWNING TYPE Windows

Shipped ready to install! Ready to provide the best of controlled illumination and draftless all-weather ventilation. Made in one, two, and three-sash units. Multiple sash fully automatic . . . all vents operated collectively by motion of lower sash, which disconnects for independent operation, and reconnects without use of manually operated clutches.

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DUTCH BOY QUICK DRYING RED LEAD PRIMER as a first coat produces a smooth surface that protects against rust and corrosion. Gives excellent anchorage for succeeding coats. Dries for recoating in 4 to 6 hours.

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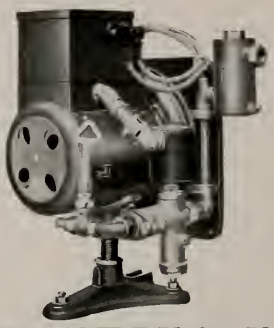

SOMETHING NEW IN OIL BURNERS

Type B 2, illustrated above, is designed especially for homes having from 330 to 1385 sq. ft. of steam radiation.

This burner operates on Pacific Diesel Oil and is available in two sizes for either pump or gravity feed fuel supply.

Pedestal mounting prevents vibration.

Catalog on request

S. T. JOHNSON CO.

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585 Potrero Ave. San Francisco
Front and R Sts. Sacramento

Estimator's Guide

Giving Cost of Building Materials, Wage Scale, Etc.

Owing to the various crafts accepting the NRA code of fair competition, in some cases they have adopted a schedule of prices, and it therefore would be advisable to get in touch with these firms direct.
Amounts quoted are figuring prices and are made up from average quotations furnished by material houses to three leading contracting firms of San Francisco.

NOTE—Add 2½% Sale Tax on all materials but not labor. Lumber prices slightly lower.

All prices and wages quoted are for San Francisco and the Bay District. There may be slight fluctuation of prices in the interior and southern part of the state. Freight cartage, at least, must be added in figuring country work.

Bond—1½% amount of contract.

Brickwork—
Common, $35 to $40 per 1000 laid, (according to class of work).
Face, $75 to $90 per 1000 laid, according to class of work).
Brick Steps, using pressed brick, $1.10 lin. ft.
Brick Walls, using pressed brick on edge, 60c sq. ft. (Foundations extra.)
Brick Veneer on frame buildings, $.75 sq. ft.
Common, f. o. b. cars, $15.00 job cartage.
Face, f.o.b. cars, $45.00 to $50.00 per 1000, carload lots.

HOLLOW TILE FIREPROOFING (f.o.b. job)

3x12x12 in.	$ 84.00 per M
4x12x12 in.	94.50 per M
6x12x12 in.	126..00 per M
8x12x12 in.	225.00 per M

HOLLOW BUILDING TILE (f.o.b. job) carload lots).

8x12x5½	$ 94.50
6x12x5 ½	73.50

Discount 5%.

Composition Floors — 18c to 35c per sq. ft. In large quantities, 16c per sq. ft. laid.
Mosaic Floors—80c per sq. ft.
Duraflex Floor—23c to 30c sq. ft.
Rubber Tile—50c per sq. ft.
Terazzo Floors—45c to 60c per sq. ft.
Terazzo Steps—$1.60 lin. ft.

Concrete Work (material at San Francisco bunkers) — Quotations below 2000 lbs. to the ton. $2.00 delivered.

No. 3 rock, at bunkers	$1.65 per ton
No. 4 rock, at bunkers	1.65 per ton
Elliott top gravel, at bnkrs.	1.75 per ton
Washed gravel, at bunkrs	1.75 per ton
Elliott top gravel, at bnkrs.	1.75 per ton
City gravel, at bunkers	1.40 per ton
River sand, at bunkers	1.50 per ton
Delivered bank sand	120 cu. yd.

Note—Above prices are subject to discount of 10c per ton on invoices paid on or before the 15th of month. following delivery.

SAND
Del Monte, $1.75 to $3.00 per ton.
Fan Shell Beach (car lots. f. o. b. Lake Majella), $2.75 to $4.00 per ton.
Cement, $2.25 per bbl. in paper sks.
Cement (f.o.b.) Job. S.F.) $2.90 per bbl.
Cement (f.o.b. Job, Oak.) $2.90 per bbl.
Rebate of 10 cents bbl. cash in 15 days.
Calaveras White . . . $6.00 per bbl.
Medusa White . . . . . $8.00 per bbl.
Forms, Labors average 25.00 per M
Average cost of concrete in place, exclusive of forms, 30c per cu. ft.
4-inch concrete basement floor.....12½c to 14c per sq. ft.
4½ inch Concrete Basement floor .....14½c to 16c per sq. ft.
2-inch rat-proofing....6½c per sq. ft.
Concrete Steps ..... $1.25 per lin. ft.

Dampproofing and Waterproofing—
Two-coat work, 15c per yard.
Membrane waterproofing—4 layers of saturated felt, $4.00 per square.
Hot coating work, $1.80 per square.
Meduca Waterproofing, 15c per lb., San Francisco Warehouse.

Electric Wiring—$12.00 to $15.00 per outlet for conduit work (including switches).
Knob and tube average $7.00 per outlet, including switches.

Elevators—
Prices vary according to capacity, speed and type. Consult elevator companies. Average cost of installing an automatic elevator in four-story building, $2800; direct automatic, about $2700.

Excavation—
Sand, 50 cents; clay or shale, 80c per yard.
Teams, $10.00 per day.
Trucks, $18 to $25 per day.
Above figures are an average without water. Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

Fire Escapes—
Ten-foot balcony, with stairs, $75.00 per balcony, average.

Glass (consult with manufacturers)—
Double strength window glass, 15c per square foot.
Quartz Lite, 50c per square foot.
Plate 75c per square foot.
Art, $1.00 up per square foot.
Wire (for skylights), 35c per sq. foot.
Obscure glass, 26c square foot.
Note—Add extra for setting.

Heating—
Average, $1.90 per sq. ft. of radiation. according to conditions.

Iron—Cost of ornamental iron, cast iron, etc., depends on designs.

Lumber (prices delivered to bldg. site)

No. 1 common	$33.00 per M
No. 2 common	27.00 per M
Selection O. P. common	37.00 per M
2x4 No. 3 form lumber	17.00 per M
1x4 No. 2 flooring VG	48.00 per M
1x4 No. 3 flooring VG	42.00 per M
1x6 No. 2 flooring VG	48.00 per M
1¼x4 and 6, No. 2 flooring	52.00 per M

Slash grain—

1x4 No. 2 flooring	$39.00 per M
1x4 No. 3 flooring	34.00 per M
No. 1 common run T. & G.	30.00 per M
Lath	5.00 per M

Shingles (add cartage to prices quoted)—

Redwood, No. 1	$ 1.00 per bdle.
Redwood, No. 2	.80 per bdle.
Red Cedar	.95 per bdle.

Hardwood Flooring (delivered to building)—
13-16x3¼" T & G Maple..... $120.00 M ft.
1 1-16x2¼" T & G Maple ..... 132.00 M ft.
⅞x3½ sq. edge Maple ..... 140.00 M ft.

	13-16x2¼" T&G	⅝x2" T&G	5-16x2" Sq.Ed.
Clr. Qtd. Oak	$200.00 M	$150.00 M	$180 M
Sl. Qtd. Oak	140.00 M	120.00 M	135 M
Clr. Pla. Oak	135.00 M	107.00 M	120 M
Sel. Pla. Oak	120.00 M	88.00 M	107 M
Clear Maple	140.00 M	100.00 M	

Laying & Finishing 13c ft. 11 ft. 10 ft.
Wage—Floor layers, $7.50 per day.

Building Paper—

1 ply per 1000 ft. roll	$3.50
2 ply per 1000 ft. roll	5.00
3 ply per 1000 ft. roll	6.25
Brownskin, 500 ft. roll	4.20
Pro-tect-o-mat, 1000 ft. roll	12.00
Sisalkraft, 500 ft. roll	5.00
Sash cord com. No. 7	$1.20 per 100 ft.
Sash cord com. No. 8	1.50 per 100 ft.
Sash cord spot No. 7	1.90 per 100 ft.
Sash cord spot No. 8	2.25 per 100 ft.

Sash weights cast iron, $50.00 ton
Nails, $3.50 base.
Sash weights, $45 per ton.

Millwork—
O. P. $100.00 per 1000. R. W., $106.00 per 1000 (delivered).
Double hung box window frames, average, with trim, $6.50 and up, each.
Doors, including trim (single panel. 1¾ in. Oregon pine) $8.00 and up, each.
Doors, including trim (five panel, 1¾ in. Oregon pine) $6.50 each.
Screen doors, $4.00 each.
Patent screen windows, 25c a sq. ft.
Cases for kitchen pantries seven ft. high, per lineal ft., $6.50 each.
Dining room cases, $7.00 per lineal foot.
Labor—Rough carpentry, warehouse heavy framing (average), $12.00 per M.
For smaller work average, $27.50 to $35.00 per 1000.

Marble—(See Dealers)

Painting—

Two-coat work ..... 29c per yard
Three-coat work .....40c per yard
Cold Water Painting .....10c per yard
Whitewashing ..... 4c per yard
Turpentine, 80c per gal., in cans and 75c per gal. in drums.
Raw Linseed Oil—80c gal. in bbls.
Boiled Linseed Oil—85c gal. in bbls.
Medusa Portland Cement Paint, 20c per lb.

Carter or Dutch Boy White Lead in Oil (in steel kegs).

	Per Lb.
1 ton lots, 100 lbs. net weight	10¾c
500 lb. and less than 1 ton lots	11c
Less than 500 lb. lots	11½c

Dutch Boy Dry Red Lead and Litharge (in steel kegs).

1 ton lots, 100 lb. kegs, net wt.	10¾c
500 lb. and less than 1 ton lots	11c
Less than 500 lb. lots	11½c

Red Lead in Oil (in steel kegs)

1 ton lots, 100 lb. keg s,net. wt.	12½c
500 lb. and less than 1 ton lots	12½c
Less than 500 lb. lots	13c

Note—Accessibility and conditions cause wide variance of costs.

Patent Chimneys—

6-inch	$1.00 lineal foot
8-inch	1.50 lineal foot
10-inch	1.75 lineal foot
12-inch	2.00 lineal foot

Plastering—Interior—

	Yard
1 coat, brown mortar only, wood lath	$0.60
2 coats, lime mortar hard finish, wood lath	.70
2 coats, hard wall plaster, wood lath	.80
3 coats, metal lath and plaster	1.25
Keene cement on metal lath	1.30
Ceilings with ¾ hot roll channels metal lath	.75
Ceilings with ¾ hot roll channels metal lath plastered	1.50
Shingle partition ¾ channel lath 1 side	.85
Single partition ¾ channel lath 2 sides 2 inches thick	2.75
4-inch double partition ¾ channel lath 2 sides	1.30
4-inch double partition ¾ channel lath 2 sides plastered	3.00

Plastering—Exterior—

	Yard
2 coats cement finish, brick or concrete wall	$1.10
2 coats Atlas cement, brick or concrete wall	1.35
3 coats cement finish No. 18 gauge wire mesh	1.50
3 coats Medusa finish No. 18 gauge wire mesh	2.00

Wood lath, $5.50 per 1000.
2.5-lb. metal lath (dipped) ..... .17
2.5-lb. metal lath (galvanized) ..... .20
3.4-lb. metal lath (dipped) ..... .22
3.4-lb. metal lath (galvanized) ..... .28
¾-inch hot roll channels, $72 per ton.
Finish plaster, $18.90 ton; in paper sacks, Dealer's commission, $1.00 off above quotations.
$13.35 (rebate 10c sack).
Lime, f.o.b. warehouse, $2.25bbl.; cars, $2.15
Lime, bulk (ton 2000 lbs.). $16.00 ton.
Wall Board 5 ply, $50.00 per M.
Hydrate Lime, $19.50 ton.

Plasterers Wage Scale ..... $1.25 per hour
Lathers Wage Scale ..... 1.25 per hour
Hod Carriers Wage Scale ..... 1.10 per hour

Composition Stucco—$1.60 to $2.00 sq. yard (applied).

Plumbing—

From $65.00 per fixture up, according to grade, quantity and runs.

Roofing—

"Standard" tar and gravel, $6.00 per sq. for 30 sqs. or over.
Less than 30 sqs. $6.50 per sq.
Tile, $20.00 to $35.00 per square.
Redwood Shingles, $11.00 per square in place.
Cedar Shingles, $10 sq. in place.
Recoat. with Gravel, $3.00 per sq
Slate, from $25.00 to $60.00 per sq. laid, according to color and thickness.

Sheet Metal—

Windows—Metal, $2.00 a sq. foot.
Fire doors (average), including hardware. $2.00 per sq. ft.

Skylights—

Copper, 90c sq. ft. (not glazed).
Galvanized iron, 25c sq. ft. (not glazed)

Steel—Structural

$100 ton (erected), this quotation is an average for comparatively small quantities. Light truss work higher. Plain beams and column work in large quantities $80 to $90 per ton cost of steel; average building, $89.00.

Steel Reinforcing—

$85.00 per ton, set, (average).

Stone—

Granite, average, $6.50 cu. foot in place.
Sandstone, average Blue, $4.00, Boise, $3.00 sq. ft. in place.
Indiana Limestone, $2.80 per sq. ft. in place.

Store Fronts—

Copper sash bars for store fronts, corner, center and around sides, will average 75c per lineal foot.
Note—Consult with agents.

Tile — Floor, Wainscot, Etc. — (See Dealers).

SAN FRANCISCO BUILDING TRADES WAGE SCALE

Established by The Impartial Wage Board November 9, 1932. Effective on all work January 1, 1933, to remain in effect until June 30, 1933, and for so long thereafter as economic conditions remain substantially unchanged.

This scale is based on an eight-hour day and is to be considered as a minimum and employees of superior skill and craft knowledge may be paid in excess of the amounts set forth herein.

CRAFT	Journeyman Mechanics
Asbestor Workers	$6.40
Bricklayers	9.00
Bricklayers' Hodcarriers	5.60
Cabinet Workers (Outside)	7.20*
Caisson Workers (Open) Water Work	8.00
Carpenters	7.20*
Cement Finishers	7.20
Cork Insulation Workers	7.20
Electrical Workers	8.00
Electrical Fixture Hangers	7.00
Elevator Constructors	8.68
Elevator Constructors' Helpers	6.08
Engineers, Portable and Hoisting	8.00
Glass Workers (All Classifications)	6.80
Hardwood Floormen	7.20*
Housemovers	6.40
Housesmiths, Architectural Iron (Outside)	7.20
Housesmiths, Reinforced Concrete, or Rodmen	7.20
Iron Workers (Bridge and Structural)	9.60
Iron Workers (Hoisting Engineers)	10.00
Laborers (6-day week)	5.00
Lathers, Channel Iron	8.00
Lathers, All Other	6.80
Marble Setters	8.00
Marble Setters' Helpers	5.00
Millwrights	7.20*
Mosaic and Terrazzo Workers (Outside)	7.20
Mosaic and Terrazzo Helpers	5.00
Painters	7.00
Painters, Varnishers and Polishers (Outside)	7.00
Pile Drivers and Wharf Builders	$ 8.00
Pile Drivers Engineers	9.00
Plasters and Hodcarriers (See wage scale under Plastering).	
Plumbers	8.00
Roofers (All classifications)	6.40
Sheet Metal Workers	7.20
Sprinkler Fitters	9.00
Steam Fitters	8.00
Stair Builders	7.20*
Stone Cutters, Soft and Granite	6.80
Stone Setters, Soft and Granite	8.00
Stone Derrickmen	7.20
Tile Setters	8.00
Tile Setters' Helpers	5.00
Tile, Cork and Rubber	7.20
Welders, Structural Steel Frame on Buildings	9.60
Welders, All Others on Buildings	8.00
Auto Truck Drivers—Less than 2,500 lbs.	5.50
Auto Truck Drivers—2,500 lbs. to 4,500 lbs.	6.00
Auto Truck Drivers—4,500 lbs. to 6,500 lbs.	6.50
Auto Truck Drivers—6,500 lbs. and over	7.00
General Teamsters, 1 Horse	5.50
General Teamsters, 2 Horses	6.00
General Teamsters, 4 Horses	6.50
Plow Teamsters, 4 Horses	6.50
Scraper Teamsters, 2 Horses	6.00
Scraper Teamsters, 4 Horses	6.00

*Established by Special Board

GENERAL WORKING CONDITIONS

1. Eight hours shall constitute a day's work for all crafts, except as otherwise noted.
2. Where less than eight hours are worked pro rata rates for such shorter period shall be paid.
3. Plasterers' Hodcarriers, Bricklayers' Hodcarriers, Roofers' Laborers and Engineers, Portable and Hoisting, shall start 15 minutes before other workmen, both at morning and at noon.
4. Five days, consisting of not more than eight hours a day, on Monday to Friday inclusive, shall constitute a week's work.
5. The wages set forth herein shall be considered as net wages.
6. Except as noted the above rates of pay apply only to work performed at the job site.
7. Transportation costs in excess of twenty-five cents each way shall be paid by the contractor.
8. Traveling time in excess of one and one-half hours each way shall be paid for at straight time rates.
9. Overtime shall be paid as follows: For the first four hours after the first eight hours, time and one-half. All time thereafter shall be paid double time. Saturdays (except Laborers), Sundays and Holidays from 12 midnight of the preceding day, shall be paid double time. Irrespective of starting time, overtime for Cement Finishers shall not commence until after eight hours of work.
10. On Saturday Laborers shall be paid straight time for an eight-hour day.
11. Where two shifts are worked in any twenty-four hours, shift time shall be straight time. Where three shifts are worked, eight hours' pay shall be paid for seven hours on the second and third shifts.
12. All work, except as noted in paragraph 13, shall be performed between the hours of 8 A. M. and 5 P. M.
13. In emergencies, or where premises cannot be vacated until the close of business, men reporting for work shall work at straight time. Any work performed on such jobs after midnight shall be paid time and one-half up to four hours of overtime and double time thereafter (provided, that if a new crew is employed on Saturdays, Sundays or Holidays which has not worked during the five preceding working days, such crew shall be paid time and one-half. No job can be considered as an emergency job until it has been registered with the Industrial Association and a determination has been made that the job falls within the terms of this section).
14. Recognized holidays to be: New Year's Day, Decoration Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Christmas Day.
15. Men ordered to report for work, for whom no employment is provided shall be entitled to two hours' pay.
16. This award shall be effective in the City and County of San Francisco.

NOTE: Provision of paragraph 18 appearing in brackets ( ) does not apply to Carpenters, Cabinet Workers (Outside), Hardwood Floormen, Millwrights, or Stair Builders.

"It is hoped that these suggestions will result in collaboration between the various governmental agencies and cities, and it is believed that, if carried out, these combined programs would be a means of starting a long range development of blighted areas, for, as the blocks are improved through the years they will offer a succession of work continually until the areas are completely remodelled or rebuilt. Thus would slums be eliminated and at no great burden of expense to anyone at any time.

"Each architect would be expected to show by photographs, sketches, schedules of cost and rental estimates, the advantage of such block modernization. It is a known fact that many owners of property now dilapidated in an otherwise desirable block, will not modernize their houses individually, but would do so if assured that practically all other owners in the same block would do likewise.

"To help induce the owners to take part, the work of procuring the loans might be lessened by having the FHA employees assist the owners in this phase. Also for its immediate labor producing factor, the local works division of the Federal Emergency Administration could put men to work demolishing the sheds, fences and so on, and assisting in cleaning up the open areas.

"Some owners of homes in almost every block in any city are in a position today where, with renewed employment and restored wages, they would like to improve their properties but their paramount obligation is to pay off accumulated mortgage interests and back taxes. Under such conditions they are ineligible for FHA guaranteed loans, but could refinance under the original terms of the Home Owners Loan Corporation Reconditioning departments.

"In states where reconditioning loans are being made, the local coordinator could arrange for collaboration between FHA and HOLC and LWD in any complete block modernization. And, for the rehabilitation of blocks, as later mentioned, PWA could join in the collaboration.

"Of course, there are those blocks where the residential buildings represent a small fraction of the total, and unless the blocks were rezoned, remodelling would be confined to the present commercial or industrial buildings.

"The block remodelling just described could be accomplished in any city and with private funds. But no city would be in a position intelligently to advocate extensive physical or social changes within its confines, or to accept government funds therefore, unless it had previously prepared comprehensive plans.

"As a matter of fact such funds would not be offered unless it could be shown that their expendi-

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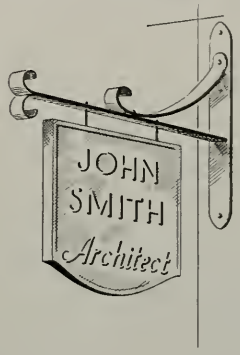

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ture would be in accordance with carefully worked out plans for the city as a whole. In all the cities which have made them, these studies have resulted in introspective reviews which have been most illuminating.

"They have disclosed facts and trends not in accord with the complacent attitude of the citizenry as a whole, but indicative of the great need for prompt action by those in authority for the preservation of the health and morals of the people and of the fair name and financial standing of the community.

"These cities, in connection with their planning studies, have been able, thanks again to CWA, to make social surveys and to plot their findings, property by property, on every block in now congested areas. Thus whole areas have been mapped out. Within these, authorities have indicated many blocks ready for consideration in connection with whatever type of rehabilitation is deemed most suitable.

"The conditions indicate that the blocks in various sites for rehabilitation fall into three types: First, those blocks where practically all the buildings are in such condition as to require only what might be termed superficial remodeling, as already described for 'block' modernization, with removal of sheds and board fences to increase the open areas and provide for garden space. Second, the blocks where approximately 50 per cent of the buildings are worthy of salvation and the balance are irredeemable. Third, those blocks where practically all the buildings are irredeemable, and where clearance and rebuilding will be necessary.

"As recommended by William K. Henkels and Paul M. Hesser, who made a study of these conditions in Philadelphia recently, the procedure to be followed in carrying out the work on blocks in the '50-50' or second group would be as follows: To set up a supervisory board of technical advisors to coordinate the various block modernization schemes and to guide the architects assigned to the work.

"While the work of replanning was in progress, a demolition porgram could be followed under the local works division, demolishing as many decadent buildings as possible in order to reduce the price on properties to be acquired to the value of the land only. Each block in this second classification should be very carefully studied and replanned with a view to the future of the block in its relation to the eventual complete block acquisition.

"The owners who voluntarily cooperate by starting to modernize their properties, using loans through FHA financing could be required by FHA to comply with the general scheme for the block, and if done privately, the architectural services

could be arranged for as a group activity, provided the owners comply with the design for the block facade.

"For those properties to be acquired in order to replace them with new homes to conform to the block development, it is logical to assume that owners of such decadent and uninhabitable properties would be only too willing to dispose of them at a fair price for the redemption of the block.

"It is obvious that the units built with government financing in such block developments will be adequately designed. Such new buildings would without doubt attract tenants from the old houses and apartments in the neighborhood. While this is not the direct object of this part of the program, nor an ulterior motive, such an incentive for a movement 'Out of the old, into the new' would force other property owners to make drastic changes in their buildings in order to hold their tenants."

GAS UTILITIES EXHIBIT

To stimulate the developing interest in home building, under Title 2 of the National Housing Act, N.H.A. regional offices have been encouraging local housing expositions in principal centers, a number of which were held in March. In Los Angeles, the N.H.A. supervisor interested a citizens committee in staging a housing exposition for three weeks, beginning May 18, and from this beginning has grown the most ambitious exhibit undertaking of any N.H.A. tie-in activity to date.

A $100,000 cash guarantee fund was raised by the citizens' committee, backed by which an immense permanent building has been built near Beverly and Fairfax Boulevards, on a 20-acre site. A private syndicate will operate the building following the exposition. The structure is 250 by 400 feet in area, and 50 feet high, and is the third largest exposition building in the United States.

An outstanding feature of the exposition is a cooperative industry exhibit arranged by the Natural Gas Bureau, representing the three local gas utilities. It occupies 4,000 feet of floor space, costing $8,000, and another $4,000 or more went into development of this space. Model kitchens show modern gas appliances in their proper setting, and numerous other appliance sets.

It is anticipated that the exposition may be extended beyond the three-week period already set. The 20-acre site is rapidly being filled with attractions which will add to the general public appeal, most of them being closely related to building activities.

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TO ELIMINATE GRADE CROSSINGS

Nearly $200,000,000 of the $4,000,000,000 public works fund voted by Congress will be expended in the elimination of highway and railroad grade crossings.

Four principles to govern the spending of money for grade crossing elimination have been outlined by the President as follows:

(1) The states or localities shall provide the land for doing away with the crossings.

(2) The crossings eliminated shall be on main line railroads.

(3) The Federal government will pay the full cost of the work.

(4) All the work that can be done shall be completed before July 1, 1936.

The President has announced that there is a growing tendency to do away with branch line railroads because of bus and other competition and for this reason no work of that character will be done except for main line roads.

The development of stream line trains, which are changing train speed from forty-five or fifty miles an hour to seventy or eighty miles an hour, emphasized, the President said, the need for crossing elimination work.

The President indicated progress has been made toward working out the machinery for handling other phases of the work to be done with the $4,000,000,000 public works appropriation.

Highway allotments to the states, he said, will be handled through the usual channels. He added that thought will be given to lowering interest rates on public works loans. It is a safe guess, he said, that if the government is able to borrow money at less than 3 per cent it probably will make loans at less than 4 per cent.

GREATEST BUILDING ERA NEARS

The cloud that has enveloped the building industry the last three years appears to be about ready to show its silver lining. Current activity generally is at a three-year high, and not all of the increase can be attributed to governmental aid, as privately financed work has been rising steadily since November. With 16,000,000 homes in the U. S. listed as eligible for repair loans, and 5,000,000 new homes required during the next several years to provide for the normal increase in the majority of cities prospects are considered the best discerned in five years.

With only a part of the building actually required under way, business generally would be accelerated immediately, as it would bring easement of monetary burdens to most of the 6,000,000 building workers now idle, and would provide employment for the 500,000 contractors and arch-

itects, while approximately 250,000 manufacturers and dealers of building materials and equipment would be benefited.

While building continues to represent but a small percentage of the volume handled during the boom period, encouraging significance is attached to the gain in the 1934 permits over those of 1933, with the increase in some districts rising by 35 to 60 per cent to the largest volume since 1930. In a number of cities, 1934 volume was double that of 1933. With repairs under the Federal Housing Act definitely under way in most parts of the country and the commercial and industrial projects which have been started since the first of the year, indications give assurance that 1935 will bring a further upward trend in most branches of the industry.

Under Title II of the N.H.A., mortgage money now is available for the construction of new homes and private money for mortgage loans is more rapidly available than a year ago. There also has been a marked increase in minor housing improvements, which require no permits, and slum elimination projects, financed by Federal funds, are in full swing, according to a survey of the building industry, which has recently been completed by Dun & Bradstreet, Inc.

In building construction, more than in any other form of activity, the preponderant share of the expenditure goes to labor. Estimates show that 3,500,000 of the total unemployed would normally be engaged directly in construction activities, and that directly and indirectly the slump in the building industry accounts for more than 5,000,000 of the men now out of work. The National Housing Act is striving definitely to revive the building trades in order to make these an assisting factor rather than a retarding one in the recovery program.

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The Wheeler - Osgood Sales Corporation announce the production of a new laminated lumber material. It will be known as "Laminex Plyform", an engineered lumber.

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ACOUSTICS

The following extract is made from a lecture given by H. Vivien Taylor, A.R.A.I.A., on Architectural Acoustics before the Australian and New Zealand Association for the Advancement of Science:

"The really scientific study of architectural acoustics has arisen in comparatively recent years. During the last 10 years rapid changes and advances have taken place; of the stimulating influences probably the advent of the talking pictures and the radio broadcast are greatest in effect, their proper development demanding scientific analyses of the requisite conditions for successful production. Re-producing systems and equipment themselves have now been brought to such a degree of technical perfection commercially that there is much greater likelihood of violating the rules of good reproduction in the acoustic design of a theater, or good recordings or pick-up in the acoustic design of a sound stage or broadcast studio, than there is in the control of the reproducing or recording equipment itself.

"To-day, with new horizons opening up, made possible by modern methods of recording, reproducing, amplifying and broadcasting of speech and music, fresh problems present themselves to the acoustic designer, and newer and more perfect acoustic conditions are demanded. These are largely due to the differences between 'monaural' and 'binaural' listening. Man with his two ears has the faculty of discriminating and picking out sounds to which he wishes to listen, to the exclusion of all other extraneous noises. He can also perceive to a large extent, the distance and direction from which a sound emanates. Not so the one-eared microphone, which approaches the human being only in its capacity for being contrary, collecting and amplifying every noise, desirable and undesirable, in a most indiscriminate manner.

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acoustics also covers problems of sound insulation, and the elimination of all forms of noise and vibration in buildings, the exclusion of traffic noise, the vibration of the tram, and the surface and underground railway. In Sydney in particular, audible vibrations from the underground railway cause some curious phenomena in buildings at points very remote from the source of sound. In some instances, a train passing under a building is not heard in the basement, but causes reverberating din seven or eight stories higher up, due to sound being transmitted up the framework of the structure to certain panels of construction, which, by virtue of their weight, area and density, respond to and amplify the particular periodicity of the vibration, converting it into airborne sound.

"Elevator machinery, ventilating equipment, and mechanical plant in a building have also to be considered, and steps taken to insulate with anti-vibrational construction; it is possible to design a system of mechanical by-pass filters to isolate the sound and vibration from any given type of equipment. Special design is required, as a resilient or elastic support which may be effective in one case may only succeed in increasing the vibration and noise in another; every flexible support must be taken on its merits. Acoustic design finds application to many forms of buildings and rooms—school buildings, commercial buildings, churches, cinemas, broadcast studios, theaters, public halls, sound-proof recording studios, hotels, flats, board rooms, offices, hospitals, law courts and even private residences.

"The public has now become conscious of acoustics, although many people still share the belief that the outcome of any particular acoustic condition is just a matter of chance. There is absolutely no foundation for this belief, as the procuring of satisfactory sound conditions is a straight-

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forward engineering problem, the outcome of which may be predetermined to meet the most exacting requirements."

COMPETITION

The Legation Imperiale de L'Iran, Washington, D. C., announces a competition by the National Bank of Iran, as follows:

They are planning to build in Teheran (the capital of Iran, a city of about 300,000 people) a stock exchange for natural products, paper money and stocks.

At present, they estimate that there will be approximately 500 merchants visiting the exchange.

The building of the exchange must answer all the needs of a modern stock exchange, including central heating, etc.

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They wish to have an outline on the scale of 1:200 for the whole project; basement, ground floor, first floor, as well as the design of the facade, and all the information as to the number of square meters of surface and cubic meters of space in the building.

It depends on the architect to adapt his project to the needs of a new and modern exchange.

For the best plan, a prize in the amount of £750 is offered, on condition that the winner of the prize executes the plan necessary for the construction, according to the suggestions given by the management of the bank, on a scale of 1:200.

The plan should be presented at the National Bank of Iran before June 1, 1935.

HOME BUILDING

March awards for residential building construction almost doubled the volume reported in February, according to F. W. Dodge

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Corporation. At the same time the residential total exceeded the March, 1934, volume by almost 15 per cent; in fact in March, 1935, contract volume for this class of construction was the highest recorded since March, 1932, when the total for the 37 eastern states was only one million dollars greater than the volume of $32,207,400 reported for last month.

For the first quarter of 1935 residential contracts totaled $71,234,400 in the area east of the Rockies. This was a gain of almost 23 per cent over the total for the first quarter of 1934; incidentally an increase over the first quarter of 1933 of almost 78 per cent was shown while as compared with the corresponding period of 1932 the current year's first quarter total was about 16 per cent smaller.

Total construction awards during March in the 37 eastern states amounted to $123,043,500. Besides residential building this volume included $44,581,600 for nonresidential buildings, $39,779,400 for public works, and $6,475,100 for public utilities. The March contract volume for all classes of construction recorded a gain of 64 per cent as compared with the February volume of $75,047,100. Compared with the total of $178,345,800 for March of last year, however, a loss in excess of 30 per cent was registered.

For the first quarter of 1935, total awards amounted to $297,864,500 in the 37 eastern states as against $461,525,800 for the corresponding quarter of 1934. In this connection it should be recalled that a year ago the PWA program was approximately at its height.

BETTER HOUSING, JUNE 15

W. G. Bingham, associate director, Southern California, for the Federal Housing Administration, has announced the launching of one or more new model homes in every important city and town in the country on June 15. This

[Turn to Page 80]

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had been originally planned for May 25, but in order to meet the demand for more time by the various individuals and organizations who would like to participate, the date has been advanced to June 15.

Ground will be broken simultaneously for the 1,000 homes which it is expected will be launched on this day. On completion the homes will be held open for display for a certain period and then sold to individual owners.

This day has been designated as National Better Housing Day, and a nation-wide ceremony is being planned with a special invitation to President Roosevelt to participate.

SPIN CABLES

With all the cellular steel sections of the south tower of the Golden Gate Bridge in place and riveting crews working at the 530 foot level, principal construction activities will now center on spinning the 36½ inch cables that will support the 4200 foot span.

All piers of the high viaduct, just south of Crissy Field, have been completed with the exception of pier 8 the cross strut of which still is under construction.

Work on the low viaduct is progressing on schedule as is the replacement of military structures moved or demolished to make way for the approach road. Three major buildings now are under construction, the chief engineer reported.

Work on the south anchorage is entirely completed in readiness for the cable contractor, while work on pylon S-2, back of Fort Winfield Scott, will continue until it has reached its final height to match pylon S-1, fronting the old fort.

On the Marin side the footings and walls for the anchorage housing are being concreted, while excavations have started for the piers of the steel approach spans.

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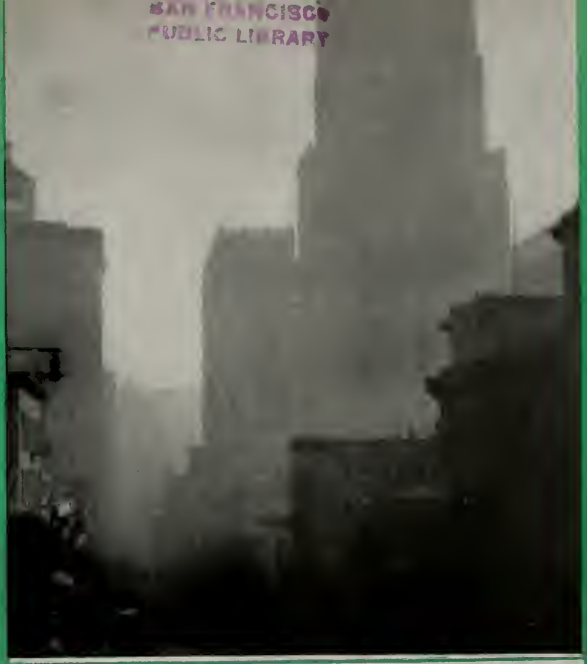

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Notes and Comments

IRVING MORROW has good reason to take exception to Mr. Magonigle's recent criticism in *Pencil Points* of the Morrow well designed modern home in Forest Hill, San Francisco. We print Mr. Morrow's letter to *Pencil Points* in full: .

"For some time I have followed, on and off, Mr. Magonigle's articles in *Pencil Points*. I am moved to discharge accumulated feelings by his comments in the April number on my Henry Cowell house in Forest Hill, San Francisco; not because I am thin-skinned under criticism—once my own decisions are made I am not particularly sensitive to opinion, favorable or adverse—but because they offer an excellent example of Mr. Magonigle's tendency to cocksureness where he lacks sufficient information for an intelligent opinion, as well as of his willingness to stoop to any means to make a point.

"In the present case Mr. Magonigle finds it unreasonable that the garage should be on the roof of the house, declaring that there is no explanation or evidence given to warrant such an arrangement. A cursory examination of the photograph he reproduces would in fact have furnished sufficient evidence; but it would be too much to expect Mr. Magonigle to let investigation of facts interfere with an opportunity to be funny.

"To me it seems fundamental in house planning that a garage should be so located that (a) access to and from the street shall be as direct as possible; and (b) its attendant pavement shall obtrude as little as possible into the views from the house. How these *desiderata* are to be attained in any instance depends, among other things, on the nature of site, location of street, and exposure.

"The house under discussion lies on a lot which slopes very steeply to the south, with street along the high end. Looking toward the street you look into the shade and into a bank; looking away from the street you look into the sun and over an exceptional view. This dictated facing the life of the house to the rear of the lot, and the garage to the front. After all requirements of the house were met in reasonable relation to the ground, the roof turned out to be exactly at the street level. It was therefore possible, by placing the garage on the roof, to have it (a) level with the street; (b) at the building setback line on the lot, which is to say, as near the street as possible; and (c) invisible from the rest of the house. This satisfied ideally every condition — except Renaissance practice in locating stables, and realtors' conceptions of sale value (Mr. Magonigle is by no means the first or only person unprepared for the idea of a garage on a roof).

"With the garage so located, it would still have been possible to build the house around and over it in the customary way; only, however, at the expense of constructing three useless stories of building underneath, or of rearing it correspondingly on stilts—a high price to pay for the approbation of critics ignorant of conditions.

"When all this is said, Mr. Magonigle is still entitled to dislike the design of the house most heartily (a privilege he will unquestionably enjoy to the utmost); not, however, to allege that the garage is capriciously or unreasonably located.

"Another point I desire to make concerns Mr. Magonigle's willingness to descend to dishonest methods to make a point. A short descriptive caption accompanying the photographs (Mr. Magonigle seems to assume that it was written by the architect, but it was not) stated, 'The house was designed functionally; that is, without any preconceived intent as to appearance.' Mr. Magonigle interpolates, 'Just see how we have progressed—appearance is no longer an element of design.'

"Now the note did not say that the house was designed without regard to appearance. It said that it was designed without preconceived intent as to appearance. It may be that in his own work Mr. Magonigle is so accustomed to warping the requirements of the program into conformity with an *a priori* conception of appearance that he really failed to appreciate the difference. I find it hard to believe, however, that a person of Mr. Magonigle's training, experience, and intelligence did not know perfectly well what the note meant, and, in fact, said fairly clearly. He was willing to make the unjustified dig deliberately, in the expectation that it would register as a point scored with an uncritical audience.

"I have long maintained, and in fact have written in architectural magazines urging that architecture would benefit enormously if it enjoyed such free and serious criticism as does, for instance, literature. To modern architecture in its present stage real criticism would be invaluable. But Mr. Magonigle does not offer criticism. His pronouncements lack this, or in fact any other utility, save possibly that of affording personal relief. Criticism implies understanding, even if dislike of the subject of discussion. When Mr. Magonigle discusses modern architecture he neither understands nor wants to understand anything about it—a perfectly legitimate attitude, but not a qualification for a critic. Confronted by a modern design, he is as critical as a bull confronted by a red rag. He merely goes 'loco' at sight of any idea which has emerged since his school days."

* * *

AT LEAST we should extend thanks to Mr. Magonigle for the liberal space he gives in May *Pencil Points* to THE ARCHITECT AND ENGINEER. Some of his comments may be justified but as a whole we are inclined to agree with Mr. Morrow who, in the same issue, takes exception to Mr. Magonigle's criticism of his (Morrow's) house and adds that the eastern architect-critic "appears to be willing to stoop to any means to make a point."

It is not our purpose to enter into any controversy with this architect-writer but we would like to make two or three things clear to those of our readers who may have read the comments in *Pencil Points*. The Bulletin of the Illinois Society of Architects is entitled to credit for Mr. La Beaum's article which Mr. Magonigle quoted quite extensively, from THE ARCHITECT AND ENGINEER. Our own failure to give this credit was due to misinformation that the La Beaum discussion originated at a meeting of architects when, according to the editor of the Bulletin, it was especially written for that publication. We wish always to give credit where it is due. And we take this opportunity to ask *Pencil Points* to do the same.

There would seem to be no good reason for Mr. Magonigle to question our laudable intentions in publishing his (Magonigle's) address to the profession under the caption "What's Wrong with the Architects."

We thought he had some good ideas, and we wished to spread the gospel but not with any attempt to make it appear he had written his message just for us. There was no desire on our part to steal

[Please turn to Page 80]

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The competition for this Fellowship is open to men in any department of any recognized college or university in the United States who are this spring receiving a Bachelor's degree or have received one since January 1, 1933.

The award of the Fellowship will be made on the basis of: (1) a fifteen-hundred word paper on "The Respective Fields and Interrelations of City Planning and Traffic Control Engineering in the Solution of the Vehicular Traffic Problem"; (2) records of scholastic achievements and extra-curricular activities. The award will be made by a Committee consisting of Professor Henry V. Hubbard, Chairman of the School of City Planning, Dr. Miller McClintock, Director of the Harvard Traffic Bureau, and Mr. Harold S. Buttenheim, Editor of The American City.

The competition closes August 1, 1935.

For detailed information and Fellowship application blanks apply to the Chairman, School of City Planning, Robinson Hall Annex, Cambridge, Mass.

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DETAIL OF PATIO, WINTER RESIDENCE OF A. W. STARKE, PALM SPRINGS, CALIFORNIA

LELAND F. FULLER, ARCHITECT

The Architect & ENGINEER

June, 1935

Desert House

by Marc N. Goodnow

● *Moorish, Spanish and Italian Motifs Combined in the Design of an Unusual Southern California Abode*

THE ability of architecture to serve the domestic needs of man and at the same time weave the moods of nature into brick, wood and plaster is perhaps shown to no better advantage than in many of those charming homes that have been built in late years on the edge of the desert at Palm Springs, in Southern California. Here, in the sun-scorched sand, "thirsty, grey and bare," and with little else than palms and sagebrush for verdure, there has arisen an admirable colony of plaster houses appropriately keyed to the California heritage as well as adapted to the climatic pecularities of a picturesque setting.

In atmospheric quality, no less than in their practical solution of the various problems of comfortable living, these desert homes somehow convey a sense of relief from accepted forms that have passed current in traditional architecture since the element of style became a principle. Not that they violate the traditions, but that they so charmingly and naively blend themselves into topographical or physical conditions differing altogether from those of hillside, seaside, urban or even rural situations.

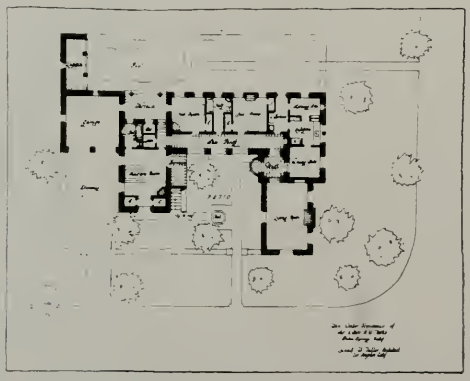
In this growing mecca for Californians and Eastern visitors, tired and worn by Omar's "quarrel of the Universe," one finds such homes as this of Mr. and Mrs. A. W. Starke, by Leland F. Fuller, architect, a very open type of planning, low and rambling, with thick walls and broad, shaded porches, and with open roof or decked spaces for sun bathing, a popular desert pastime. Moorish, one would say off hand, but a composite, according to Mr. Fuller, of the best in the Spanish, Italian, and Northern African styles. The style is definitely an attempt—and a successful one—to fend off the fervent sun, yet take advantage of its health-giving rays; to promote deep shadows, yet conserve the heat

Photo by Margaret Craig

WINTER RESIDENCE OF A. W. STARKE, PALM SPRINGS
Leland F. Fuller, Architect

of the day for the chill of the desert night.

From the exterior one feels that the house is truly American, such as a sophisticate who has traveled through southern countries would build for himself. It is low in scale, for height does not always lend coolness in the desert, though if one wishes, a tower offers a lookout over many miles of sand studded with sagebrush and cactus. It is well spread out, perhaps even lazy looking, which is much as it should be, for this is a land of "manana." Not until a little time has been spent at Palm Springs does one truly understand the real meaning of the word.



PLAN, WINTER RESIDENCE OF A. W. STARKE, PALM SPRINGS
Leland F. Fuller, Architect

Walls are thick; reveals and embrasures deep, for in the summer there is need enough for protection from hot winds and persistent sunshine. And though flat roofs would connote low ceilings, the usual beamed or raftered vaulting gives every necessary quality of spaciousness, with ample circulation of air.

As becomes its character, the Starke home, like others of its type, is knit together about the paved patio, with its cen-

Photo by Mott Studios

STONE TILE HOUSE, PALM SPRINGS, CALIFORNIA

tral fountain and comfortable furnishings for sun bathing. In planning it follows closely the hacienda type of Spanish house, with a broad front, and the sleeping and service quarters in widely separated wings. The spacious character of the room arrangement as well as of the rooms themselves adds a notable air of coolness during summer days and nights. Patios, terraces and loggias, sheltered from the sun, contribute cool depths as an outdoor feature.

Still another element that adds to the healthful qualities of the desert house is the roof deck equipped with canopy and camp chairs or pallets for sun baths. Sunburn is cultivated here, but by degrees, since intemperate exposure under a scorching sun brings penalties swift and painful. Here, too, as in many homes of similar character, a swimming pool is a closely related adjunct of the house.

One notes a predominance of door and window openings, all of them giving a pronounced feeling of "outdoorness" which has many advantages. Circulation of air is most necessary when thermometers register 120°F. in the sun. But under the influence of deep, shaded recesses and covered passageways, separated from the heat by very thick masonry walls, the air naturally lowers its temperature and loses much of its dread. The insulating qualities of low roofs, heavy walls and well guarded enclosures are put to a genuinely practical use in this locality.

But the spacious feeling of these houses is achieved not alone by the type of their construction and room arrangement. It is equally the result of the use of archways instead of doors between rooms; open beam work or raftering in living and dining rooms; deep reveals at doors and windows, and the substitution of "bull-nosing" in plaster treatment for wood trim at door and

window openings. Even the use of octagonal or rectangular floor tiles with wide mortar joints, commonly used in hallways, living rooms and dining rooms, may also be said to contribute to this feeling of roominess. Then, too, the presence of vistas induced within through patios and the usual wall openings of the Spanish house, adds still another outdoor quality that makes its own appeal to modern Americans.

While the desert house in California has made use of traditional materials in its construction, it has frequently gained in pictorial effect either by combining those materials in a somewhat different manner or by adapting old materials to new uses. The demands of comfort are necessarily a bit rigid—in the heat of a blazing sun—and therefore insulation against wide changes of temperature has required a more solid form of masonry wall construction than that employed in less arid and less temperate climates. The usual type of plaster wall, laid up on metal reinforcement, affords only a small degree of protection, with little or no heat or cold retaining qualities. For this reason the use of concrete units is growing largely, giving the walls not only a dead air space and a desirable thickness that defies penetration by wind or temperature, but the opportunity for most attractive textural treatment.

These walls are often given a trowel coat of plaster or stucco, but they are just as often left in their natural state or brush coated with a light cement wash that does not affect the texture and that very closely resembles the early Spanish adobe house wall. The method is much in keeping with the spirit of the house as well as of the desert setting, and forms a delightful element of contrast with red tile roofs and orange-colored awnings or exterior window curtains.

In writing of the desert one is conscious of conveying an impression of aridity in which verdure is entirely lacking. But the truth is that gardening on the desert home site is less of a problem than is generally supposed, for even though moisture may not abound there are available a large number of plants which are characteristic of such a haunt and which brighten the yard with their vivid hues.

The succulent rock garden may now be said to have come into its own, with unusual beauty and color and the ability to absorb sufficient moisture during brief periods of rain to persist through drouth, and even through neglect and abuse. These fleshy plants harmonize well with the varicolored desert rocks and with the type of architecture which they surround, and their ease of culture makes them particular favorites of the desert gardener. Those who plan a desert home will find much of interest in their study.

Among the most common of the succulents are the Opuntias, divided into two species: one with round joints (Cylindropuntiae) and the other with flat joints (Platyopuntiae). The spiny cactus is a member of this family. The Chollas or bush-like cacti of the southwestern deserts are most attractive, propagated by joints when the parent branch falls to earth. Their masses of light colored spines present a vivid contrast to the green stems at certain periods of the year.

Perhaps the best known species of Cholla are the Opuntia bigelovii, the O.arborescens, and the O.imbrecata. Opuntia serpentina, which dries into an interesting wickerwork, is commony met with on the coast of Southern California. O.subulata comes from South America but thrives in California gardens, and there are many of these plants, with their thick, fleshy leaves, three inches in length, round and pointed,

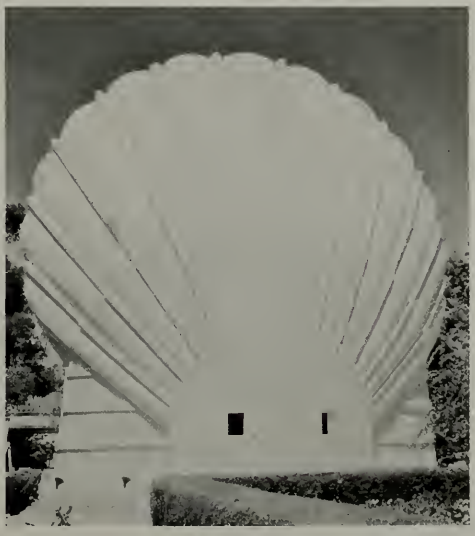
[Please turn to Page 54]

Unique

● *Shell Oil Building at San Diego Exposition is Replica of Company's Trademark*

AMONG the many special buildings at the California Pacific International Exposition in San Diego, the Shell Oil Company building is attracting interest because of its unique design. Reproducing in giant proportions the Shell trademark, two great shells joined together at the top, form the exterior outline of the building. The highest point of the shells is 52 feet above the ground, the maximum breadth is 51 feet. A sanded paint finish in deep cream gives the appearance of a stuccoed monolithic structure.

The interior has been converted into offices with the Shell touring service in charge of answering questions and distributing free road maps. The floor is ellipsoidal in shape. thirty-six feet in length and twenty feet in width. Color has been used in profusion.

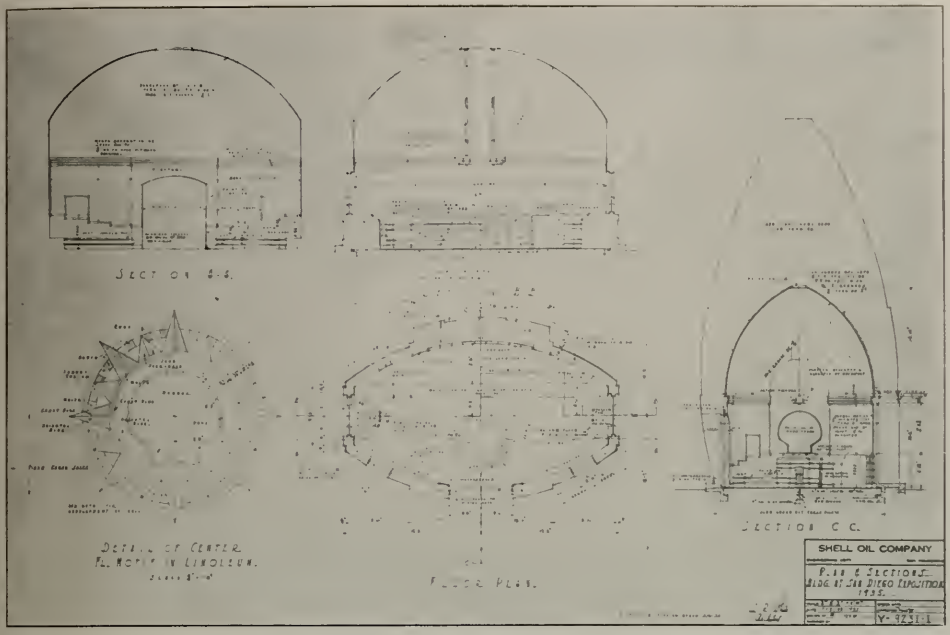


REAR VIEW OF SHELL OIL BUILDING, EXPOSITION GROUNDS, SAN DIEGO

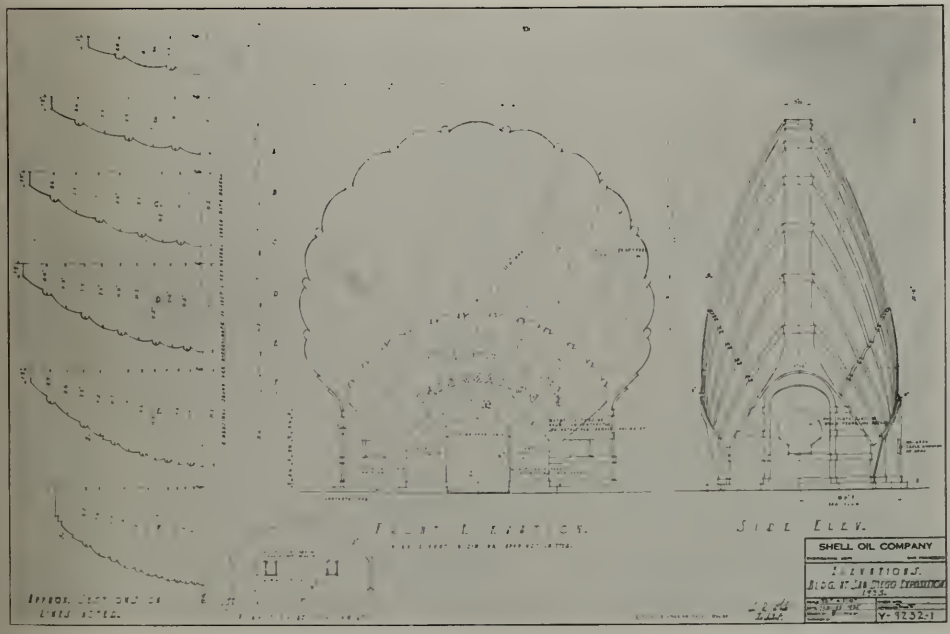
Facing the entrance on the west wall is a huge map, said to be the largest animated electrical road map in the world, showing in perspective with relief effect the entire West from the Rockies to the Pacific. Fourteen states, Western Canada and part of Mexico are included, with principal cities, National Parks and other points of interest pictured. Fifteen thousand miles of

SHELL OIL BUILDING, CALIFORNIA PACIFIC INTERNATIONAL EXPOSITION, SAN DIEGO

L. RAYMOND WHITE, ARCHITECT



PLAN AND SECTIONS, SHELL OIL BUILDING, SAN DIEGO
L. Raymond White, Architect



ELEVATIONS, SHELL OIL BUILDING, SAN DIEGO
L. Raymond White, Architect

main highways are depicted by means of electric lights which flash on and off mechanically, the lights advancing from San Diego along the highways until the entire West is illuminated. More than two miles of wiring, 3,000 globes, and 530 separate contacts, each with its own fuse, were used in the electrical apparatus.

On the wall opposite the map are two mural paintings depicting the history of western transportation, contrasting the pioneer wagon train with today's modern motor cars and airplanes.

The segmented vaulted ceiling is painted sky blue and creates an outdoor effect which harmonizes with the treatment of maps and murals.

A walnut wainscoting and counter extend the full length of the room, which is decorated with gold bands in modernistic design, adding greatly to the richness of the interior. The room is illuminated by a specially designed center ceiling fixture. Mounted on octagonal pedestals at each end of the room are attractive metal and glass fixtures.

Due to the unusual design of the building, a plaster model was constructed very early in the planning of the structure, from which the detailed drawings were made, and later served as model for actual construction. The feature structural problem was to so design the halves that they could be fabricated complete in the shop and later bolted together on the actual site of the display. The structural frame consists of two arches at the mid-sections and a diagonally framed truss at each end. The fins of the shell are supported upon girts which are in turn carried by the trusses and arches. The frame is of structural steel and the exterior is fashioned from sheet metal.

L. Raymond White was the architect and R. W. Henry the structural engineer. Oil paintings of the map and murals were done by Paul N. Dohrmann.

Prize Home

by James R. Ferguson

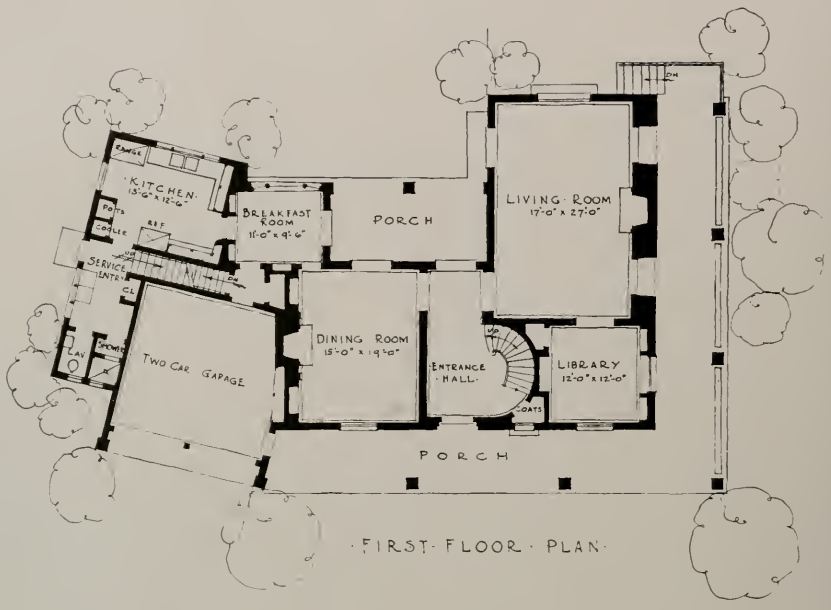
● *Some Late Pictures of the Southern California House that Brought First Award to H. Roy Kelley, Architect*

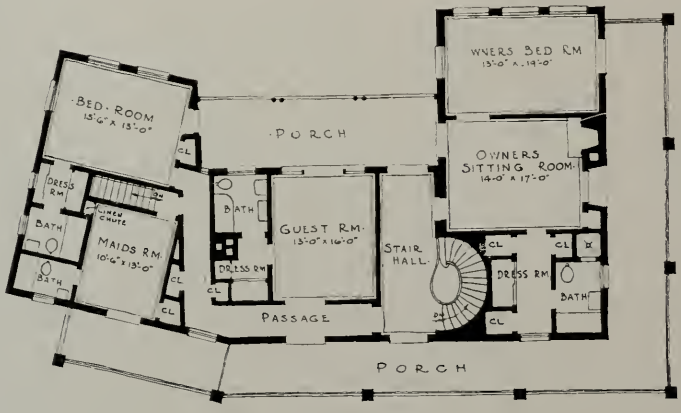
FIRST prize in the recent national contest conducted by an Eastern magazine was awarded to H. Roy Kelley, architect, of Los Angeles, for his design of a residence for James M. Irvine of Altadena. The house is located on a four-acre site overlooking the Arroyo at the extreme westerly end of Homewood Drive.

A two-story abode of modified Georgian character, the residence has second story porches surrounding three sides, as a means of protection against the heat of the sun. The house contains a large living room, library, dining room, entrance hall with dressing room and other guest facilities, also kitchen, maids' rooms, and guest suite containing sitting room, sleeping room and dressing room and bath, and two other bedrooms, each having its priate bath.

RESIDENCE OF JAMES M. IRVINE, ALTADENA
H. Roy Kelley, Architect

The plan of the house is so arranged as to give all of the principal rooms an outlook on the patio garden, which is landscaped with terraces, pools, arbors and other landscaping features of interest. The side sloping down from the westerly end of the house has a series of terraced gardens, and at the lower end there has been developed a series of gardens containing naturalistic planting, which have attracted widespread interest, and were recently awarded the sweepstake prize in





PLANS, RESIDENCE OF JAMES M. IRVINE, ALTADENA, CALIFORNIA

H. ROY KELLEY, ARCHITECT

the Pasadena Garden Club contest. These gardens were landscaped under the direction of the architect and Florence Yoch and Lucille Council, landscape architects.

Interior of the house typifies a modified and modern use of Georgian tradition. The library and dining room are panelled unit furnaces. Gas heating, which may be accomplished with several different types of equipment from central furnaces to small units, provides a flexible system for the requirements of any house. The gas unit furnaces in this instance are furnished with automatic temperature control.

Photo by Haight

RESIDENCE OF JAMES M. IRVINE, ALTADENA, CALIFORNIA
H. Roy Kelley, Architect

in the Georgian manner, each having Colonial fireplaces, in addition to the fireplaces provided in the living room and masters sitting room.

First and second story porches add considerably to the livability and comfort of the house. All of the principal rooms are so arranged that sliding doors give maximum access and outlook upon these porches and gardens beyond.

Heating of the Irvine residence has been taken care of by the installation of six gas

Mr. Kelley, the architect, has gained prominence for the design of many well-known residences in California, and has been successful in winning a number of National architectural honors, including first prize in a 1928 competition for a small house; first prize in the National Better Homes Contest conducted by the Home Owners Institute of New York in 1929; first prize in the National Own Your Home Contest in 1929, as well as a number of other national architectural competitions.

CONCRETE FLOOR IN CONCOURSE, CHICAGO AND NORTHWESTERN RAILWAY TERMINAL, CHICAGO

Frost & Granger, Architects

After twenty-seven years of the most severe service, this concrete floor installed in 1908 is in perfect condition. The durability of this wearing surface reflects the care exercised in its placing, finishing and curing.

Floors

by A. J. Boise

● *Modernized Technique Enables the Architect to Display his Genius in Design, Color and Texture in Concrete Floor Construction*

IT WAS inevitable that the concrete floor should be adopted for general use not only in industrial and commercial buildings, but in hospitals, offices and large and small homes. However, it is doubtful if, even today, the decorative possibilities of concrete floors are fully realized.

Concrete gained its first utility as a floor because of its smooth hardness, and concrete floors have made a place for themselves in a wide variety of environment because of their adaptability to decorative schemes. But the seeming simplicity of concrete as a structural material has led many users to disregard the more definite technique required for specialized work such as floor finishes. For this reason results have not always been entirely satisfactory. On the basis of present-day knowledge of concrete, there need never be any results less than completely satisfactory.

For the purposes of this article it may be assumed that the structural floor slab has been properly constructed and is ready for the placing of the topping and its subsequent decoration. Here we are faced with a kind of work which involves considerable skill and careful attention to details. The almost unlimited range in decorative effects requires the co-operation of skilled artisans to carry out the wishes of the designer. Hence it is more than ordinarily important that the work be done by the most expert and conscientious labor obtainable.

The ordinary faults found with improperly constructed floor finishes are crazing or hair cracking (other than structural cracks) and dusting under service.

These faults may be traced directly to failure to observe basic principles of concrete making, placing, finishing and curing. Neglect or carelessness in any one of these important operations may cause the defects mentioned.

In making concrete, the mixture must be composed of properly proportioned ingredients, cement, sand, stone and mixing water. The amount of mixing water must be kept to a minimum. A mixture that re-

Terrazzo Floor, Michigan Square Building, Chicago
Holabird and Root, Architects

TERRAZZO FLOOR, DENVER NATIONAL BANK, DENVER, COLORADO
W. E. and A. A. Fisher, Architects

Metal dividing strips of both irregular and straight patterns permit a wide range in design and color effects. Note monogram-like figures in the center panel and the modern border design.

CONCRETE ART MARBLE FLOOR, COVENANT CLUB, CHICAGO
W. W. Ahlschlager, Architect

Attractive color effects secured by the use of concrete tile laid in a conventional pattern. This type of floor is particularly adaptable to residences as well as public buildings.

quires compaction with rollers, tampers or mechanical floating machines gives best results. Under no condition should more than from 4½ to 5 gallons of water, including the moisture in the aggregate, be used for each sack of cement. The mixture should not be made up of cement and sand alone especially for heavy duty floors. It should consist of one part cement, one part sand and from one and one-half to two parts of crushed stone or pea-gravel graded from ⅛″ to ⅜″. This mixture gives much less shrinkage and greater resistance to wear than the mortar mixes so often used in the past. The concrete should be placed and finished in such a way that a large portion of the coarser grains remain at the surface of the finished floor.

Avoids Placeable Concrete

Workable or placeable concrete, as generally understood for structural use, has no place in the construction of floor finishes. It has been an old habit to spread a very plastic, wet mixture for floor toppings, compensating for the excess fluidity by sprinkling cement or a mixture of sand and cement on the wet surface just prior to trowelling. This should never be done for the practice promotes crazing and dusting.

In finishing a floor there is a natural tendency to utilize the steel trowel on the concrete almost as soon as it is in place. Yielding to this temptation has produced many concrete floors subject to dusting and surface checking early in their careers. The reason for this is not obscure. The action of a steel trowel on soft concrete serves to bring to the surface not only water, but fine sand and cement. These form a surface layer which will be soft and weak so that resistance to wear cannot be expected. Such surfaces often dust before the building is occupied.

The modern method of handling concrete for floors is to compact the concrete and then allow it to become quite rigid before

any considerable trowelling is done. The compacting is done by heavy rollers, wood floats or electrically driven power floats. Then, when the concrete is quite stiff, it is steel trowelled. The action of the trowel at this stage serves to further compact and to smooth the surface. No displacement of the ingredients of the concrete takes place and the results are highly beneficial. The principle of delayed trowelling applies alike to concrete floors of all types.

Proper Curing Important

The remaining operation upon which success will depend is adequate curing. This is one of the most important steps, but unfortunately one of the most often neglected. A floor finish should never be allowed to dry out for at least the first ten days. Water should be applied to the finish as soon as the concrete is hard enough not to be marred by the process. It may then be covered with one inch of sand which should be kept constantly moist by sprinkling.

The durability and resistance to wear of the concrete depends upon the complete chemical reaction between the cement and water. This reaction is not complete when the concrete is hard, in fact it has just started and continues for a long period. If the water evaporates, allowing the concrete to dry, the chemical reaction is retarded or stopped. For this reason, the continued application of water to the finished surface for at least ten days is imperative if good results are to be expected. Neglect to comply with this requirement may nullify all good and proper efforts employed at other stages.

On the basis of this modernized technique in concrete floor finishing, the architect may proceed with his designs, as free to execute his heart's desires as the artist who faces a fresh canvas. He may impose his finish directly on the concrete, staining and polishing it to achieve the desired effect, or he may incorporate in the concrete, color, pattern, texture or whatever appeals to his

VARICOLORED FLOOR FINISH, COOPER BUILDING, LOS ANGELES

Morgan, Walls & Clements, Architects

The troweled finish requires accurate placement of brass strips in order that they will be flush with the wearing surface. Four different colored concretes were used in the design of this floor.

CORRIDOR, COOPER BUILDING, LOS ANGELES

Morgan, Walls & Clements, Architects

Flexibility in design and variation in color characterizes this concrete floor.

sense of desirable decoration. Finally, if he wishes to combine the advantages of concrete with a floor of some other finish, he can do so easily, superimposing wood, tile, linoleum, cork or ceramics on the concrete.

dried, the floor should be mopped clean and allowed to dry thoroughly. Paints having pure linseed or china wood oils for vehicles are best, with abrasion-resisting pigments. Thin the first coat to help penetration; sub-

CAST-IN-PLACE CONCRETE FLOORS FOR APARTMENT BUILDINGS AND RESIDENCES

The integrally colored concrete floor finish in this building has been marked off in squares with a cuttin tool. Highly polished with wax, this type of floor harmonizes with the quiet dignity of the interior dec oration.

Applied Colors

Probably the simplest finishes are obtained by applying color directly to the concrete after the surface has dried. A mellow, glossy and mottled finish is obtained with inorganic stains, applied with a mop or brush and allowed to react with the cement until the desired effect is achieved. Then, when the stain has thoroughly dried, the floor may be waxed and polished.

Perhaps a more intense surface color is desired. Painting is one way to get it, but paint should not be applied to new concrete without certain preparations. The natural alkalinity of the concrete must be neutralized. Neutralization is accomplished by mopping the surface with a solution containing 3 or 4 pounds of zinc sulphate per gallon of water. After the solution has

sequent coats may be run-of-the-can. It should be realized that it will be necessary to repaint from time to time, especially in those areas subject to wear.

Integral Colors

Integral coloration opens up an immense field of opportunity. It involves the mixing of carefully selected mineral pigments with the concrete in the topping. The color range is quite wide, although the reds, browns and greens have been most widely used. It is essential that the pigments are of mineral or non-organic extraction, for organic colorings have been found to react unfavorably with concrete.

Best results with pigments are probably secured by mixing the dry color with the cement under factory control. By carefully weighing the materials, however, good re-

sults may be expected with field mixed materials. The accompanying table gives approximate quantities of pigment required, assuming concrete proportioned as previously recommended. Some pigments have more color value than others and should be used accordingly.

After a floor colored with integral pigment has been cured, dried and cleaned, it may be waxed or polished exactly as a wood floor. This brings out the color and gives a gloss to the surface.

Many architects have taken advantage of concrete's early plasticity to strike off geometric designs in it; if sharper lines are desired, a carborundum wheel, working over the hardened surface, can be utilized.

Possibly the most popular form of concrete floor is terrazzo—a floor in which the wearing surface is composed largely of colored marble chips or other aggregates. One of the features of terrazzo, its subdivision into units by the use of brass strips, has opened up a new field in floor design. The use of contrasting aggregates in adjoining sections was the beginning of the new decoration with terrazzo; closely followed by a departure in the manner of spacing and placing the metal strips. Today, the possibilities in terrazzo design are unlimited.

TEN YEARS OF TRUCKING HEAVY LOADS HAS NOT MARRED THIS CONCRETE FLOOR FINISH

Crushed trap rock aggregate was used in this wearing course and the surface was finished by troweling. The hard wearing quality of the floor is largely due to the control of the water-cement ratio in mixing and adequate curing.

Residence Floors

Increased use means more varied use. Hence, it is natural that, with the increasing adoption of concrete floors in residences, there should be a constantly widening variety of treatment. More and more concrete floors are being put into small and relatively inexpensive houses. They involve little, if any, added cost, usually less than 2 per cent of the cost of a house with an ordinary first floor. Considering the added fire safety, strength and beauty, the expenditure is a high class investment.

When the concrete floor began the domestication process there were wails from some who foresaw cold, clammy and uncomfortable years ahead for their feet. But they have proved to be warm and dry due

REMOVING EXCESS WATER BY THE USE OF AN ABSORBENT COVERING

Immediately after striking off, the wearing course is covered with dampened burlap and a mixture of dry cement and sand. This absorbs some of the free water in the mix, and in effect reduces the water-cement ratio of the topping. After removal of the absorbent, the finish is compacted by an electrically operated disc float, and then troweled by hand.

MIXING CEMENT AND PIGMENTS FOR COLOR

Color Desired	Commercial Names of Colors for Use in Cement	Pounds of color required for each bag of cement to secure	
		Light Shade	Medium Shade
Grays, blue-black and black	Germantown Lampblack* or	$\frac{1}{2}$	1
	Carbon Black* or Black	$\frac{1}{2}$	1
	Oxide of Manganese* or	1	2
	Mineral black	1	2
Blue	Ultramarine blue	5	9
Brownish red to dull brick red	Red oxide of iron	5	9
Bright red to vermilion	Mineral turkey red	5	9
Red sandstone to purplish red	Indian red	5	9
Brown to reddish brown	Metallic brown (oxide)	5	9
Buff, colonial tint and yellow	Yellow ochre or	5	9
	Yellow oxide	2	4
Green	Chromium oxide or Greenish blue ultramarine	6	....

*Only first quality lampblack should be used. Carbon black is of light weight and requires very thorough mixing. Black oxide or mineral black is probably advantageous for general use. For black use 11 pounds of oxide for each bag of cement.

to the warmth and dryness above and below the concrete. And the concrete has a capacity to become friendly, in a mellowly colorful way.

Industrial Floors

By far the greatest area of concrete floors are to be found in business buildings, hotels, large apartments, hospitals and industrial plants.

They range in type from the heavy-duty, flint-hard and impervious floors needed in loading platforms, machine shops and factories, to the most intricate and delicately designed terrazzos of de luxe apartments.

The creation of a heavy-duty floor is a separate art. As in all first class concreting, care should be taken with the aggregates, to be sure that they are clean, hard and free from dirt, clay, loam or vegetable matter. The mixing of concrete for a heavy duty floor finish should be done with the

[Please turn to Page 55]

Light

by Clark Baker

Lighting Counselor

● *Illuminating Fixtures Today Must Be Efficient as Well as Decorative*

THE modern demand for color, light, and air in buildings is resulting in the evolution of a new art of architecture, lighting, and decoration. Particularly is this noticeable in the attention being given to lighting, which is combining efficient illumination with decoration.

First of all, the goal to strive for in modern lighting is that sort of illumination which provides ample light without gloom or glare, the sort of light that makes seeing easy and comfortable for the eyes. But it is not a job of lighting by modern standards unless it also adds to the general decorative effect. We must recognize today that lighting has emerged from the stage of utility only and has become an art and science. It is a comparatively new science and has probably made more progress in the last half dozen years than in all the history of lighting that preceded. Until this very recent period, virtually all that was considered was the development of light sources.

Then came another period during which the thought of beauty in lighting was beginning to find a place in home planning, which made itself manifest in what was referred to as subdued lighting. This was inspired, of course, by the desire to get away from the glare of unshaded and improperly placed light sources. But the subdued lighting was overdone. In other words, there was too little light. People sat in rooms in which it seemed as though the effort had been deliberately made to keep the lights down to such a state of gloom that one could scarcely recognize one's neighbor at the dinner table.

During all this time, illumination was developing as an art. It naturally suffered growing pains in the form of excesses and ugliness.

The illuminating engineer then came to the front, and the tendency toward excessive uncontrolled illumination or toward the gloom of subdued lighting, gave way to a new ideal embracing both quality and beauty. The cumbrous, inartistic fixtures of yesterday were recognized as an offense to the critical eye, and fixtures combining utility and artistic design began to make their appearance.

The modern movement toward simplicity in architecture and vivid color in decoration is complemented by scientifically designed lighting fixtures which co-operate with the high standard of architectural and decorating efforts. The trend toward simplicity of

fixture design requires that the fixture must be a vehicle for light, suitable to the production of good lighting—not an object of primary interest in itself, except in special cases to fulfill decorative demands. The new trend in fixture design is quickly apparent in a glance through the pages of the popular home magazines, or the lighting trade journals.

In both interior and exterior lighting, skilled use of illumination must have always in view the basic factors, light and shade, and architectural balance must be maintained between these two. The character of architectural design and surface textures may be maintained or even accentuated by light.

Methods of achieving desired lighting results are various, embracing direct, indirect, and semi-indirect lighting. Each method produces a decidedly individual effect. Unshaded light sources are often mistaken for direct lighting. In reality they are seldom justified or desirable, as raw, unshaded light beams falling uncontrolled upon an object produce harsh, sharp shadows which eliminate contrasts, thereby producing seeing hazards. Indirect light is totally diffused light. For many applications it is the most desirable type of lighting. However, it requires closer study of fundamentals than direct lighting to avoid having the light so thoroughly diffused that contrast here again is lost by not having enough light and shade. On the other hand, well controlled direct lighting will produce enough light and shade for all form to be clearly seen and character recognized. Semi-indirect lighting is a combination of direct and indirect. Color-filter illumination, a variation which can be used with any of these methods, is adapted to a great variety of specializations, and promises interesting and spectacular developments.

The art in color illumination lies in proportioning qualities and quantities of light, shade, and color. Here a course must be charted carefully between the Scylla and Charybdis of color lighting — on the one hand a dead monotony, flat and fatiguing; and on the other, irritating, exaggerated variety, clamoring for attention.

Colored lighting should be used in the home only for special lighting purposes, or for spectacular effect. It should not be provided where close visual tasks such as reading or other work is done. The reasons for this are, first, that color affects us emotionally, and sitting under colored light for extended periods of time produces color fatigue. And, second, that pigments which are used in the decorative scheme of the room have a power to reflect their own color only. In order that each individual pigment color is given its opportunity to reflect its beauty and strength, it is necessary that the light have all vibrations of color in it. This condition is found only in unfiltered (not colored) light.

An example of the effect of colored light is found in the many homes today where red, so-called flame tint, or yellow light is used. If the room be done in a key of light tints or shades, and red light is used, they will accept the greater strength of red light and consequently materially change their tone. If the predominating colors are in the blues, greens, purples, violets, they will go to very definite gradations of grey. Should they be creams, tans, ivories, they will appear as tints and shades of red. Flame-tint light produces similar changes although it is somewhat weaker in its effects, and yellow produces changes equally as drastic.

The possibilities of illumination have barely been touched, and the realm of color, both in light itself and in reflecting surfaces, which vary widely in light absorption and reflection value, is a field of absorbing interest.

Criticism

by Roger Allen

● *Architectural Profession in Dire Need of Honest and Frank Comments on its Work*

OF ALL the professional men whose handiwork might be assumed to lend itself to fair critical comment, the architects, in New York at least, are the least able to stand adverse comment. A musician can shrug off a blistering comment on his recital; a sculptor may say, "sorry he didn't like it, but what the hell?", but let a critic point his opinion that a certain building is a monstrosity and the architect will get his lawyer and go into battle with all the legal weapons from Blackstone to Max D. Steuer.

Thus Mr. Stanley Walker, in *City Editor*. Since Mr. Walker is a former city editor for the *New York Herald Tribune* and is now editing the tabloid *Mirror*, he knows whereof he speaks.

Thin skins are not peculiar to New York architects; their brothers in other parts of the republic display a similar lack of epidermic toughness. Among editors this fact is well known, and the consequence is that little intelligent criticism of American architecture gets into our dailies or (with a few exceptions) into our weeklies. Obviously, if a writer knows before hand that unless his criticism is favorable, some cautious editor will consign it to the hell-box, there is little incentive to treat a new architectural work with the same freedom displayed in the discussion of a new book, a new play, or a new painting.

If it is true, then, that most architects bitterly resent pointed criticism of their works, it will be worth while to examine the reasons for this resentment and see if they are well founded. It is probable that an architect's reaction to an unfavorable notice of his work is compounded of equal parts of wounded vanity, belief that the critic is not well enough equipped, technically, to set himself up as a judge, and a fear that adverse criticism may scare away potential clients.

The sting of injured vanity cannot be cured; it must merely be endured. Probably no artist ever really wishes to hear unfavorable comment on his work, but in every other field this fact does not deter the critics from blithely taking the artist apart to see what makes him tick.

The question of the technical equipment of the critic is entirely relevant. Today it is doubtful if there are more than half a dozen lay-writers able to write an intelligent critique of the manner in which an architect has solved a particular problem. Why should there be? There is no market for their work, no matter how excellent that work might be.

Lewis Mumford and Douglas Haskell are certainly far better equipped by training and education to criticise a new structure than are most drama critics to analyze a new play. I mention Messrs. Mumford and Haskell because, at the moment, I can think of no other popular critics of architecture who are as well known.

If honest and frank criticism of architecture is ever encouraged and practiced, there will soon be plenty of qualified critics available. Asking for them now is like demanding that a man shall be a proficient performer on a non-existent instrument.

And now for the real point: Does hostile criticism, to put the case as strongly as possible, deprive an architect of lucrative commissions by frightening off clients with their pockets full of money and their heads full of profitable schemes? I doubt it very much; in fact I think the exact opposite is true.

When Critic Joseph Doakes, chronicling the erection of a building designed by Architect William Noakes, remarks that "the new building for the Blitz Spinach Exterminator Corporation on lower Umpty-umpth street, resembles nothing so much as an over-grown cracker box with the mumps. Architect Noakes' solution of the problem indicates that he failed to look in the back of the book to see if he had the correct answer," the layman may imagine that all the readers of this candid critique will henceforth and forever believe that Architect Noakes is a fine lad to stay away from when they desire any architectural work done.

Nothing of the sort, as any experienced editor knows. What happens is this: Readers of the Doakes critiques will long since have divided themselves into two classes; those to whom the words of Critic Doakes will seem worthy of some respect, and those who never give Mr. Doakes and his star-spangled sentences anything but a good letting alone. Of the readers who took enough pains to read the whole criticism, a certain number will also take the trouble to go and look at the offending structure. Some of them, on beholding the monument of Mr. Noakes' genius, will agree that the building does look like a cracker box with the mumps. An even larger percentage will be able to see nothing whatever wrong with the building. They will then remark to themselves, and subsequently to anyone who will listen: "This fellow Doakes is certainly no judge of buildings, and I have no doubt that his home life is far from perfect."

Meanwhile, the architect has had his name mentioned, albeit unfavorably, in the middle of a lot of pure reading matter; a location that thousands of manufacturers, professional men and citizens of all descriptions yearn for as the heart panteth for the water brooks. It is better, from every standpoint, to be mentioned unfavorably than not to be mentioned at all.

When Miss Gertrude Stein, landing in her native America, favors the delighted news camera men with a sample of her somewhat less than crystal pose, the sample consisting mostly of "Pigeons in the Grass, Alas." she probably knew that shortly thereafter her efforts would be rewarded with giggles from large numbers of people who have no interest in pigeons in the grass, alas. They prefer Turkey in the Straw, Alas. Yet the net result of her good showmanship is an immediate increase in the sale of copies of the various volumes of Stein songs. Enough people either see something admirable in the samples, or wish to have a larger sample to giggle at, to cause them to buy her books. Thus everyone is satisfied.

Architects must learn to endure and to encourage frank criticism of what they are doing. Architecture cannot be a popular art, or even a lively art, until it is freely and

[Please turn to Page 55]

Church

● *St. Peter Martyr Edifice at Pittsburg, Designed by Arnold Constable, Architect*

ST. PETER Martyr Church at Pittsburg, California, was designed by Arnold Constable, architect, of San Francisco, whose fine ecclesiastical work in California is familiar to the profession. The Pittsburg edifice reflects the architect's understanding of the period from which this design was taken, generally referred to as Romanesque.

The building is reinforced concrete with stucco exterior and tile roof. The edifice is 120 feet long by 62½ feet wide over the transepts. The church accommodates 600 persons on the first floor with an additional seating for 100 in the choir gallery.

DETAIL OF ENTRANCE, ST. PETER MARTYR CHURCH, PITTSBURG, CALIFORNIA
Arnold Constable, Architect

In the interior of the church, open roof construction was used, with exposed roof trusses. The trusses themselves are of steel but are boxed in wood and decorated with shields in full color. The main entrance is of re-cut cast stone, well designed and beautifully executed. In the Tympanum is a carved stone panel representing the Martyrdom of the Dominican Saint to whom the church is dedicated. Over the main entrance is a rose window of 12 lights, typical of the Romanesque period. This window is repeated at the west end over the main altar. The building is heated with hot air, automatically controlled. The cost of the completed structure was approximately $70,000, including the church furniture.

K. Theill, Structural Engineer

ST. PETER MARTYR CHURCH, PITTSBURG, CALIFORNIA
Arnold Constable, Architect

AUDITORIUM, ST. PETER MARTYR CHURCH, PITTSBURG
Arnold Constable, Architect

Heating

by J. B. McMahon

● *Survey Reveals Need of Planning Service for Architects to Insure Efficiency*

THE design of a heating system, whether it be gravity or forced warm air, steam vapor or hot water, requires careful consideration. Primarily, a heating system should be designed to adequately and efficiently meet all of the heating requirements of the residence or building in which it is installed. This is too often not the case, and, while the equipment installed may be in perfect order, the entire system may be condemned because it does not provide adequate capacity.

Architects, builders and engineers are increasingly adopting the practice of including heating design in the initial architectural planning, as a measure of insuring adequate heating.

A survey of a number of gas central heating jobs reported to us as not entirely satisfactory definitely led to the conclusion that too little thought was given to this important phase of residential and building construcion, in connecion with the systems surveyed. Listed in order of most frequent occurrence, the survey revealed:

Steam, Vapor and Hot Water Systems—

1. Boiler, inadequate capacity.
2. Distribution mains, poorly graded.
3. Standing radiation, insufficient.
4. Radiators, poorly located.

Forced and Gravity Warm Air Systems—

1. Furnace, inadequate capacity.
2. No cold air return or fresh air supply (on gravity systems).
3. Warm air leaders undersized.
4. Warm air leaders, poor pitch and too long (on gravity systems).
5. Warm air leaders, too many bends (on gravity systems).
6. Warm air leaders, without proper insulation.
7. Registers, undersized and poorly located.
8. Noisy fans and blowers (on forced air systems).

To assist in the correction of the foregoing conditions, the San Diego Consolidated Gas and Electric Company inaugurated a planning service available to all architects, designers, builders, heating contractors and customers in the San Diego territory. This engineering service is resulting in mutual satisfaction and improved heating design. Also, similar services are being conducted by utilities in other territories.

The planning service includes the calculation of heat losses and requirements, together with layouts, prints and specifications covering every phase of each heating job. In addition, supervision of equipment

Editor's Note: Mr. McMahon, the author, is heating engineer for the San Diego Consolidated Gas & Electric Company. While the article is somewhat localized, it is of general interest in that it points out the increasing practice of architects to provide adequate heating provisions in their plans.

installation is furnished by gas engineers, when requested. In every instance, a minute inspection is made of the completed installation in accordance with methods approved by the American Society of Heating and Ventilating Engineers.

This local cooperation is slowly but definitely raising the standards of gas and other heating systems. It is interesting to note that during the year of 1934, there were approximately 175 single dwelling units constructed in San Diego and vicinity. Of this number, approximately 65 per cent installed gas central heating systems, 25 per cent were equipped for gas space heating, and 10 per cent installed equipment utilizing other fuels. The total number of installed gas central heating jobs was designed to provide adequate capacity for the maximum demands of the user.

Perhaps the greatest advantage of gas fired heating equipment is the fact that the average installation costs approximately one-half, and in some instances less than half, that of a comparable system utilizing another type of fuel. Because of this difference in first cost, an appreciable saving is effected, since the annual fixed charges of depreciation and interest on the investment are materially reduced.

A further definite advantage of gas heating equipment is that it is non-mechanical. This is of vast importance to the user, since a non-mechanical furnace or boiler is a guarantee of continuous and uninterrupted service.

The question of estimated fuel costs has been a moot point for a long period. Arguments without limit, and many without foundation, are hurled to the clients' ears. However, it is fully established that the most accurate estimates can be made from the BTU loss and requirement basis. In the San Diego territory estimates have been made and a record of actual consumption kept on numerous residential and building heating jobs. In every instance the estimates proved to be in excess of subsequent actual consumption. All estimates made in this territory are based on a 30° rise, 1600 D.D. year and 1100 BTU gas at the local rate. Comparative fuel costs are estimated on the same basis, substituting the BTU value and unit cost of other fuels at known efficiences for all types of equipment.

WARM AIR HEATING SPECIFICATIONS

For House, Loma Portal, California

Room	Cub. Cont.	Air Chng.	Btu Loss Per hr.	Rise Size Lead	Register Type	Register Size	Ca Return Grill	Ca Return Duct	
Living	5890	2	31,126	2-10″	W	8x10	W	12″)	
Dining	2988	2	10,703	10″	W	10x12		)	
Breakfast	859	2	3,142	8″	W	8x10		)	#1
Hall	2755	2.5	4,841	8″	W	8x10	W	22″)	
Library	4370	2	22,349	12″	W	12x14	W	12″)	
Mtr.	3610	2	15,840	4.5x12 10 3.5x12	W	10x12		)	
Bath	1197	2	6,602	8 4.5x12	W	8x10		)	
Boy	2423	2	11,872	10 3.5x12	W	10x12		)	#2
Bath	513	2	3,129	8 3.5x12	W	8x10		)	
Guest	1760	2	3,974	8	W	8x10		)	
TOTAL									

RECOMMENDATION: #1-135

FURNACE: #2-90 M-BTU/HR. A.G.A. Input Rating
CONTROL: 2 gang "S" in lower and upper halls; Thermo down unit.
VENT: Seven inch
FURNACE ROOM: OK as laid out
Note: Use ¼″ aircell asbestos—connect 22″ CA to unit up

Following is a typical domestic heating cost analysis in the San Diego territory:

Overall Annual Cost

	Gas Fuel	Other Fuel
Installation*	$525.00	$900.00
Fixed Charges		
Depreciation, 10%	52.50	90.00
Interest, 5%	26.25	45.00
¼ H. P. Motor		4.50
Maintenance		
General	5.00	5.00
Special		10.00
Fuel**	120.00	78.00
TOTAL	$213.75	$232.00

*Full automatic equipment to meet maximum requirements of 110 M BTU/Hr. Calculations, layout and specifications shown below.
**1100 BTU gas @ $1.00/Mcf @ 75% Efficiency; Other fuel @ .06c/137.5 M BTU @ 60% Efficiency.
Note: It is important to observe that the above cost analysis is based on the local San Diego fuel rates and duration of heating season. Analysis for other localities would vary according to local conditions.

Trees

by Ralph D. Cornell, F.A.S.L.A.

● *Distinguished Landscape Architect Urges Planting of the Aristocrats of the Tree Family*

"IT has been said that during the last Republican administration President Hoover made monkeys out of everyone, but since President Roosevelt has been in office he has spent most of his time planting trees for the monkeys to climb. You see, we are right in line with the New Deal."

Webster defines an aristocrat as a noble, or one of the best citizens. In considering the aristocrats of the tree family I would start with such a definition and assume that this topic, which has been assigned to me, should concern itself only with the finest of the trees that are found to flourish in this land of many trees.

Although California is particularly blessed in climate and soil and conditions that have brought to her shores a wider variety of plant materials than can be found in any other comparable spot on our globe, these same conditions have given equal haven to many plant pests and have created perplexities of culture that must be analyzed and combated intelligently. The hot aridity of California summers, the tendency for many soils and irrigation waters to carry alkali or other injurious salts, the wide variation in types of soil from pure gravel to the heaviest of clays, water-clogged and stagnant with suffocation, the tendency for frequent hot, dry winters with inadequate rain, all combine to present circumstances under which only the aristocrats of our tree world are able satisfactorily to render proper account of themselves.

When I think of tree aristocrats I think of the grand old trees that live, not for decades but for centuries; the trees that are friends of man in the beneficiences that they bestow; the trees that are beautiful and enduring and that hold their heads high through the struggles and storms of life as the years march on into centuries. Wherever there are such trees, those spots are known to the world. Their fame has spread before them and man, by the thousands, has made pilgrimage to worship at their shrines. Of such are the cedars of Lebanon, the oaks of merrie England, the ilex trees of Italy, the Japanese cedars, the Montezuma cypress, our New England elms and, — right here at home, the redwoods and giant sequoias that are among the oldest of living things known today. Some of these giant sequoias, the big trees, were already husky youths of a possible

A paper read at the Western Shade Tree Conference, Santa Monica.

thousand winters when Christ bore his cross of Calvary nearly two thousand years ago. And today they still hold their heads high, undaunted by the storms and scars of three thousand winters, the annual mecca of countless tourists who journey long miles that their eyes may gaze on these venerable patriarchs that have so well withstood the ravages of time. Species of the sequoia were as commonly abundant as those of any other tree group in the world, in ages gone. Their fossil remains have been uncovered in America, throughout Europe, and across northern Asia to the number of more than fifty species. The famed petrified forest of Arizona is of sequoias that grew millions of years ago, were submerged beneath a permanent ocean, submitted to the strange alchemy of change in nature's crucible and returned to the realm of light and visible things when this continent last emerged from the green depths of submarine slime. A few living trees still exist with us today, patriarchs of an ancient race, aristocrats of a long line of descendants that were all but wiped from the face of the earth at the time of the glacial age, — and now are found nowhere in a natural stage except in the very limited and circumscribed portions of their California habitat. True, they are not shade trees in one sense of the term, but they are aristocrats.

California has many other aristocrats of the tree family, none of them, however, with the ancient lineage or dogged tenacity to life that the sequoia has established. But all of them justify their place in the sun and are well worthy of inclusion on the planting list of all tree lovers. Her oaks are famed and beautiful. There is probably no tree better adapted to all around use and a wider range of conditions than is the coast live oak, *Quercus agrifolia*. Beautiful in its form and texture, rich green in color, with a foliage that clings for twelve months of the year, the live oak is resistant to heat and cold, aridity and abundant rainfall, and is adaptable to a wide variety of artificial planting uses. As a street tree it is unsurpassed under average conditions where it will grow. It makes a beautiful specimen for lawn planting or landscape use and will mingle comfortably with its fellows to form open grove or plantation, while it lives to the ripe old age of a modest thousand years or more. There are other oaks of exceeding beauty and hardiness. The valley oak, *Quercus lobata*, though deciduous, is one of the most beautiful trees in the state but I have seldom known it to be planted by man, never in large quantity. Other oak varieties include the evergreen golden-cup oak, *Q. chrysolepis*, the semi-evergreen Engelman oak, *Q. engelmanni*, the blue oak, *Q. douglasi*, and the black oak, *Q. kelloggii*, the latter two of which are deciduous. All of these species have distinctive beauty and, being true native sons, are well equipped to cope with our perplexities of soil and climate, provided that they are wisely planted in localities that provide fair, average approximation of the conditions to which they are naturally adapted. With our wide range of altitudes and climatic vagaries it is readily understandable that judgment must always be used in the selection of plant varieties that are to be planted in any given locality.

Another beautiful tree that stands high in my personal favor is the native California sycamore, *Platanus racemosa*. Though never living to the venerable age of the oaks it is more than probable that some of our sycamores endure for over a century, during every single day of which they exist to give pleasure to him who may see them clustering along the sinuous course of a dry river bed or dipping their branches toward the sparkling waters of a mountain stream. Of all the sycamores, the world over, none is so beautiful as our California sycamore; none has its brilliant white bark of spring;

and none grows with the same rugged picturesqueness of structure. Grouped in copice clumps of some desert canyon, its trunks will stand out almost as white and arresting as those of a clump of white birch in New England's hills. And the gaunt, gnarled form of its branches silhouetted against a blue sky makes a pattern long to be remembered. The sycamore must have fair drainage and plenty of water and is relatively a short-lived tree, but its good qualities so far offset all objections in my mind that I would rank it among the aristocrats worthy of being planted.

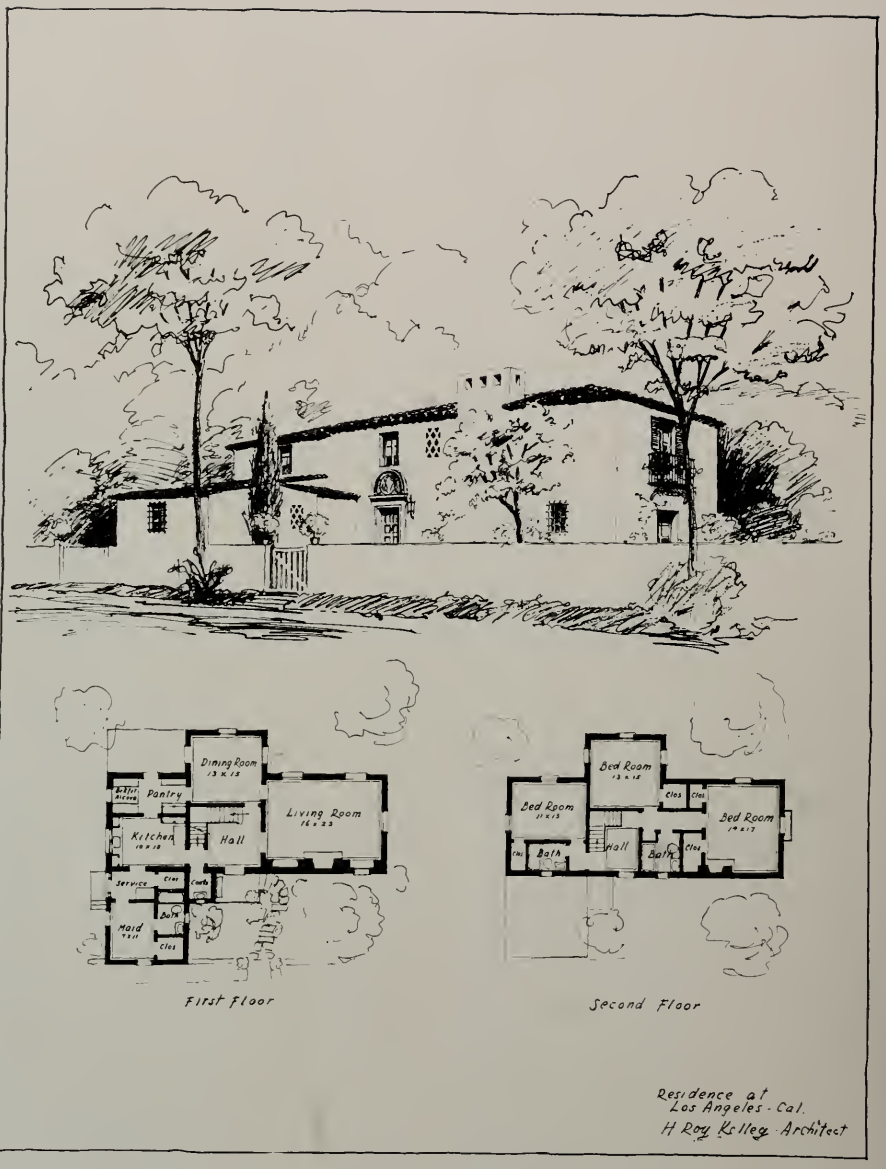
This brief paper cannot attempt to be a chronicle of trees, either indigenous or exotic, but there are other natives that deserve mention even though it be but passing. They would include the California bay or laurel, *Umbrellularia californica*, which will endure an extremely wide variety of soil and climatic abuse; our California black walnut, *Juglans californica*, which vies with the eastern walnut where it is at its best, in the northern part of the state; the native maples and the buckeyes and the evergreen madrone from cool, northern canyons; the pines from our mountain and coastal belts, some of them beautiful and long-lived and most impressive; the incense cedar and the Douglas fir and the many other conifers of the sierra regions.

Although certain qualifications might justify the inclusion of all these trees upon the roster of indigenous aristocrats, it is not to be assumed that all or any of them can be planted promiscuously, with impunity and with expectancy of satisfactory results regardless of location and care. It is every man to his job and every tree to its proper environment. Obviously, redwoods or giant sequoias are not suitable street trees and would never be used for average highway planting, although there might be situations in mountain regions where their informal planting along a mountain road would be desirable. The study and selection of tree varieties for any given locality should be a matter of judgment as to what particular species will thrive under the given conditions of a district. And even within a small geographic area over which climate and rainfall are uniform, the soil may so vary, within short distances, that intelligent action will demand a change in tree varieties to meet these changes in soil chemistry and physiology. Failure to adapt plant varieties to local conditions has been particularly apparent in much of our highway planting where it has been more or less the prevalent custom to select a given tree for a given highway and plant it unvaryingly along the roadside in all kinds of different soils. Such procedure can never produce a highway of uniform trees but, on the contrary, usually precludes many failures and much irregularity in vigor and growth of trees. It is not necessarily the fault of the tree that we see so many unhappy looking plantings, but rather is it the fault of judgment in the selection of varieties suitable to the immutable conditions under which they must make their struggle, — whether it be to survive or perish.

Besides our own native species California has adopted many exotic trees, from practically all climes, that thrive and flourish in her glorious sunshine. These include representatives from many families that may have originated anywhere from the tropics almost to the arctic circle. Not all trees within this wide range of latitude will thrive here, but some trees from practically all latitudes seem to be perfectly at home in this cosmopolitan land. . . .

Although California supports her All Year Club and likes to feel that she presents an evergreen front to all visitors, I think that there is much to be said in favor of planting more deciduous trees, particu-

[Please turn to Page 54]



PEN SKETCH FOR RESIDENCE, LOS ANGELES
H. ROY KELLEY, ARCHITECT

COST OF FINANCING A HOME UNDER NATIONAL HOUSING ACT

(Data prepared for THE ARCHITECT AND ENGINEER by Bank of America)

	$3000—Loan			$5000—Loan			$7500—Loan		
	10 years	15 years	20 years	10 years	15 years	20 years	10 years	15 years	20 years
Principal and Interest	$ 31.82	$ 23.72	$ 19.80	$ 53.03	$ 39.54	$ 33.00	$ 79.54	$ 59.31	$ 49.50
Service Charge	1.21	1.23	1.23	2.01	2.04	2.05	3.01	3.06	3.08
F.H.A. Insurance Premium	1.25	1.25	1.25	2.08	2.08	2.08	3.13	3.13	3.13
Taxes—Estimated	6.00	6.00	6.00	10.00	10.00	10.00	14.50	14.50	14.50
Fire Insurance—Estimated	.55	.55	.55	.85	.85	.85	1.30	1.30	1.30
Total Monthly Payment	$ 40.83	$ 32.75	$ 28.83	$ 67.97	$ 54.51	$ 47.98	$101.48	$ 81.30	$ 71.51

	$10,000—Loan			$12,500—Loan			$16,000—Loan		
Principal and Interest	$106.06	$ 79.08	$ 65.99	$132.58	$ 98.85	$ 82.49	$169.70	$126.53	$105.59
Service Charge	4.02	4.08	4.11	5.02	5.10	5.14	6.43	6.53	6.58
F.H.A. Insurance Premium	4.17	4.17	4.17	5.21	5.21	5.21	6.67	6.67	6.67
Taxes—Estimated	22.50	22.50	22.50	25.00	25.00	25.00	40.00	40.00	40.00
Fire Insurance—Estimated	1.85	1.85	1.85	2.35	2.35	2.35	3.50	3.50	3.50
Total Monthly Payment	$138.60	$111.68	$ 98.62	$170.16	$136.51	$120.19	$226.30	$183.23	$162.34

Note—It will be observed that this chart covers periods of ten, fifteen and twenty years. In handling Federal Housing loans bank officials say they have found that many of the applicants prefer ten or fifteen year loans rather than the maximum time allowed under the Act. For that reason the chart was prepared covering carrying charges for the three periods.

LILY POND IN COUNTRY ESTATE

A SPANISH-COLONIAL INTERIOR

SC.
LIBRARY

TWO SKETCHES
and a Delineation

by

Clemens Friedell, Jr.
San Francisco

A FISHERMAN'S BOAT, FISHERMAN'S WHARF.
SAN FRANCISCO

DARRELL PLACE ON TELEGRAPH HILL, SAN FRANCISCO
Pencil Sketch by Clemens Friedell, Jr.

PSYCHOPATHIC AND CANCER HOSPITAL, SAN FRANCISCO
MARTIN J. RIST, ARCHITECT

Clemens Friedell, Jr., Del.

GRAND STAIRCASE IN A PIEDMONT RESIDENCE
FREDERICK H. REIMERS, ARCHITECT

Damage

by A. A. Brown

● *San Francisco Survey Discloses Termite Infestation in 80% of the 288 Buildings Inspected*

MORE than eighty per cent of the 288 buildings inspected in San Francisco are found to be infested with termites and other wood - destroying organisms. During the past three months a course of instruction has been given at the headquarters of the San Francisco Termite Survey on methods of identifying different species of termites, and means of locating these insects by inspection of existing structures.

A summary of the inspections made during the period of training inspectors is given on another page. Inspections of buildings which are being wrecked for approaches to the San Francisco-Oakland Bay Bridge show approximately 95 per cent to be infested, whereas buildings that are not being wrecked are showing infestations of approximately 74 per cent. This discrepancy in the percentage of infestations is probably due to the inability of the inspectors to locate all hidden sources of infestation. In many instances, hidden colonies of termites were not discovered in buildings to be later wrecked, but inspections at the time of wrecking operations disclose the concealed termite activity. Approximately 92 per cent of all wood buildings inspected have been found damaged by wood - destroying organisms, whereas only 22 per cent of the public utility poles are thus infested.

Many interesting cases of damage by termites have been uncovered in this three months' instruction period. In a five story Class "C" apartment house a 10 by 10 wood column was found to be entirely destroyed in the basement of the building. This column had originally been 7 feet 6 inches long, and at the time of its renewal and replacement it had been reduced to a length of 6 feet 2 inches. The wood columns in the basement of this building had been covered by metal lath and plaster, which concealed the destructive activity of the subterranean termites.

Wood Columns Eaten Away

In another five story Class "C" apartment house, one of the wood columns was found to have no bearing value whatever. In two industrial plants, columns supporting traveling cranes were found to have been practically destroyed by subterranean termites. A three story hotel building was found to have two wood columns in the

RAMP LEADING TO A CATHEDRAL IN ROME
SKETCH BY JOSEPH M. REEVES

SUMMARY OF SAN FRANCISCO TERMITE SURVEY

up to and including June 5, 1935
288 inspections—not including utility poles

WOOD FRAME BUILDINGS:		
Number of inspections		223
" of Zootermopsis infestations	62	
" of Zootermopsis and beetle infestations	9	
" of Reticulitermes infestations	72	
" of Reticulitermes and beetle infestations	7	
" of Zootermopsis and Reticulitermes infestations	34	
" of Zootermopsis, Reticulitermes and beetle infestations	2	
" infested by fungi only	10	
" infested by beetles only	1	
" of infestations on property but not in buildings	20	
* " of infestations species not identified	12	
" of properties and buildings with no infestations	10	
CLASS "C" BUILDINGS:		
Number of inspections		52
" of Zootermopsis infestations	6	
" of Reticulitermes infestations	8	
" of Zootermopsis and Reticulitermes infestations	2	
" infested by beetles only	1	
" infested by fungi only	7	
" of properties and buildings with no infestation	28	
CLASS "A" BUILDINGS:		
Number of inspections		5
" of infestations on property but not in building	1	
CLASS "B" BUILDINGS:		
Number of inspections		6
" of Reticulitermes infestations	1	
" of properties and buildings with no infestations	5	
UTILITY POLES:		
Number of inspections		100
" of Zootermopsis infestations	5	
" of Reticulitermes infestations	16	
" infested by fungi only	2	
" of poles with no infestation	77	

* During the first few days, at which time the Project was being organized, inspections made did not clearly identify species of termites doing damage in twelve instances. The buildings were being demolished, and were removed before the re-checking had been completed.

basement entirely destroyed, and eight adjoining columns seriously damaged by termites. One wood frame building was damaged to such an extent as to require its condemnation. In a number of instances homes have been damaged so badly that it is estimated the repairs would cost as much as $5,000. Exclusive of buildings being demolished, we find dangerous structural conditions which require immediate repair, to exist in approximately 12 per cent of the buildings inspected.

On June 1st a systematic inspection by blocks was begun in the Richmond and Mission districts. These two areas have been selected for the first organized inspection program for the reason that the Mission district is generally known as the

warmest section of San Francisco, whereas the Richmond district is cold and in what is commonly known as the fog belt. A comparison of the damage done by various species of wood - destroying organisms may throw some light upon the influence of climate in its relation to termite damage. Men have been organized into groups of six with a squad captain, to work under the direction of a district supervisor. Draughtsmen have filled out cards at the City Assessor's office giving the location of each building on the lot, its approximate outline, and other pertinent data, as an aid to the men making the inspections. New men are being assigned to the San Francisco Termite Survey for a period of training, to take the place of the men who are now engaged in regular field inspection work. As rapidly as the new men absorb the instruction they will be added to the inspection force. It is hoped that in the near future it will be possible to maintain 200 to 250 trained inspectors in the field every day.

STREET SCENE IN TAXCO, GUERRERO
Photo by Rafael Garcia

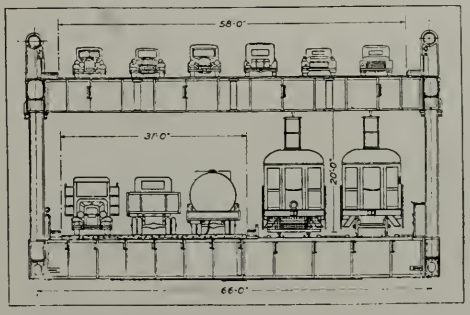
Cables

● *Chief Engineer of Bay Bridge Describes Method of Spinning Huge Suspension Ropes*

GREAT interest is being taken in the building of catwalks which are necessary before the suspension cables of the San Francisco-Oakland Bay Bridge can be spun. These walks are now being laid, as the illustration shows. C .H. Purcell, chief engineer of the Bay bridge, has prepared the following interesting description of the suspension cable feature of the bridge:

There will be two catwalks, each 10 feet wide, one under each of the two cables. The walks will hang from 2¼ inch ropes, each rope having a strength of 480,000 pounds.

The surface of the walk will be made of two layers of wire mesh, the lower layer made of chain link fabric, and the upper of "hard-wire" cloth with mesh about ½ inch square. This mesh is laid on timber cross beams which are supported from the wire ropes at intervals of 10 feet. The walks will have handrails consisting of a single 9-16 inch wire cable.



SECTION VIEW OF SAN FRANCISCO-OAKLAND BAY BRIDGE, SHOWING TRAFFIC LANES

The catwalks will be connected together by crosswalks, of which there will be three in the center span and one in each of the side spans. These are for the purpose of bracing the two walks together and also to permit the workmen to cross from one catwalk to the other.

To add to the rigidity of the system, especially in times of storm, the storm cables are added. These consist of two one-inch lines in each span which are connected to the towers about 100 feet above the water, curve upwards, and are connected to the footwalk cables with wire hangers in such a way as to hold the footwalk cables in place.

Two cables for each footwalk have been placed between the San Francisco anchorage and Pier W-1 and two ropes for each walk between Towers W-2 and W-3. The next operation was to raise the four ropes for each walk from Pier W-1 to Tower W - 2, crossing the Embarcadero. Then followed the

San Francisco-Oakland Bay Bridge as it will appear from the Oakland Hills, with the business district of Oakland in the foreground. The drawing of the bridge was done in a light gray paint more visible than battleship gray, but even with this greater visibility the bridge melts into the background and much of its beauty of line is lost. Chief Engineer C. H. Purcell points out that proponents of gray paint fail to realize that, although the bridge has huge proportions, yet it is seen from such vast distances that its towers and cables are like gossamer threads—only to be seen if painted black or some equally visible color.

CAT WALKS, EACH TEN FEET WIDE, WITH WIRE MESH FLOOR FOR WORKMEN TO TRAVEL OVER WHILE HUGE CABLES ARE BEING STRUNG

stringing of four ropes between the center anchorage and Tower W-3. With the placing of the last four ropes between Towers W-2 and W-3, and between the San Francisco anchorage and Pier W-1, building of the crosswalks was begun.

The task of putting the wire mesh simultaneously on each side of the tower from Tower W-3 to the center anchorage, and from Tower W-3 to the center of the 2310-foot span is now well advanced. These sections are erected to platforms near the top of the tower, connected to the cable, and then slid along the cable to the final position. Upon completion of this operation, these platforms will be transferred to Tower W-2 and the same operation repeated.

After the wire mesh is all in place, it will be tightened to reduce the "spring" in the wire as much as possible. The storm cables will then be placed, completing the catwalks.

Following this, gallows frames will be erected. These consist of rectangular frames above each catwalk, at intervals of about 230 feet and at the towers, and to each are secured the haulage lines for the actual process of spinning the cable.

This haulage system consists in principle of an endless rope between the San Francisco anchorage and the center anchorage. Two spinning wheels, five feet in diameter, are placed on this rope over each footbridge; also, at each anchorage are located the drive for this machinery and a system of towers with sheaves, or grooved wheels, over which the cable wire passes so as to maintain a uniform tension on the wire.

The cable wire is being brought from eastern mills in 5-foot diameter coils, each coil containing 350 pounds, or about 3,500 feet of wire. The steel company has installed at its Twentieth Street plant a reeling set-up in which the wire is taken from these coils and placed on reels, each reel containing 32,000 pounds, or nearly 60 miles, of wire.

For the west suspension bridge, 50 per cent of these reels will be taken to the San Francisco anchorage, 50 per cent to the center anchorage, and placed in the reel stands.

In the spinning operation, starting at the San Francisco anchorage, a bight, or loop, of wire is taken from the reel, passed around the spinning wheel, the haulage machinery is set into operation, and the wheel passes from the San Francisco anchorage to the center anchorage, carrying this bight, or total of two wires. Arriving at the center anchorage, this loop is removed from the spinning wheel, passed around the strand shoes, a new loop taken off one of the reels at the center anchorage, and the journey repeated.

In place of the single loop the contractor has taken two loops, thereby placing four wires per trip of the spinning wheel.

Each cable strand contains 472 wires so that each strand requires 236 trips of the spinning wheel. Except for the center, or nineteenth strand, which is laid up by itself, the strands are spun in sets of four, each set being adjusted to correct elevation before starting succeeding strands. There will be 37 strands, or a total of 17,464 individual wires.

* * *

Automotive traffic over the San Francisco-Oakland Bay Bridge will be expedited by the operation of sixteen toll collection stations located near the eastern end of the bridge.

Designs for the toll houses and an opera-

tions building, modeled along the most modern lines, have been approved by Chief Engineer C. H. Purcell. The complete structure will be erected on the fill in the Oakland tidelands which will constitute the east-bay approach to the bridge.

The operations building, located on the north side of the approach roadway, will contain a garage, machine shop, electric controls, police station and general bridge maintenance office.

Beneath an overhead structure extending across the roadway from the main building will be sixteen toll collection stations, fourteen to accommodate passenger automobiles and two for trucks, with an equal number of traffic lanes. Two collectors are to be stationed in each of the eight houses.

Trains will approach and leave the bridge on tracks passing behind the operations building at the extreme north side of the approach.

TREES

by RALPH D. CORNELL

[Concluded from Page 39]

larly for avenue planting and as shade trees. This much surely can be said of them, that they provide very pleasing shade during the summer months and admit the sunlight in winter time when it is so welcome. I would not wish to have them dominate the landscape but, within reasonable limits, I think that they afford something of a pleasing contrast with the broad-leaved evergreens that generally prevail in the milder sections of the state. The streets of our capital city, Sacramento, illustrate the summer beauty of mature deciduous trees. And I think it hard to find a more satisfying type of summer shade than that provided by such trees. So just a word in their favor!

DESERT HOUSE

by MARC N. GOODNOW

[Concluded from Page 14]

and white felted aeroles. The prickly pears are flat-jointed Opuntias. By patient work Luther Burbank eliminated the spines of O.littoralis and made them fit for cattle fodder. One of the most widely distributed succulents in the southwest is O.basilaris (Beaver-tail cactus), which is a splendid plant for the garden, flowering freely with large purple flowers and purple stamens.

In the sedum family there are many favorites, because of the little room they require and their adaptability to rock gardening. They have a great variety of form, from shrub-like plants to low-growing moss-like creations. Many have the rosette form. The best of these is Sedum spathulifolium, of California, which carpet the rocks of the coast range canyons with delicate green, grey or crimson. Many of them change from green to reddish tints with the seasons.

Related closely to the Sedums are the Sempervivums, which are almost exclusively in the rosette forms, from the little buttons of the cobweb house leek (Sempervivum arachnoides) to the Canary Island giants (S.tabulifosum) with closely set rosettes twelve inches or more across. Among the best known of the succulents is the Agave or American century plant, which is particularly adaptable to the fairly large rock or Spanish garden.

Thus it should be obvious that insofar as plants are concerned, the desert garden need not lack for either verdure or decoration. Cacti and other succulents have a natural place in the picture of the desert

house, whether it is of Spanish, Mexican or Indian origin, and the wealth of species available, together with the ease with which they may be cultivated, offers the desert home builder an opportunity to provide many striking but wholly natural effects.

The vistas of greenery and color in such a garden are often made a delightful part of the house through the framework of open doors and windows and the archways of sun porches and corridors. Being wholly in the atmosphere of the house itself, they lend a certain native quality that promotes picturesqueness, if not livability. And this, clearly enough, is one of the prime essentials of the desert house, from whatever angle it may be viewed.

CRITICISM
by ROGER ALLEN
[Concluded from Page 32]

frankly discussed in the same manner in which the sister arts are examined and discussed. If criticism is tabu, then one of the most promising avenues for the popularization of good architecture is closed. Architecture and its practitioners must come of age; all of us must be adult enough to allow and to encourage a state of affairs that will make the design of a new church as much a legitimate subject of comment as the premiere of Lydia Lovesome in that great dramatic spectacle, "Murder in the Percolator."

If we are not willing to adopt this attitude, then as architects, we should never, under any circumstances, criticise work done in any other field of art. In the vernacular, if we can't take it we shouldn't dish it out.—*Bulletin of the Michigan Society of Architects.*

CONCRETE FLOORS
by A. J. BOISE
[Concluded from Page 28]

absolute minimum of water, consistent with its ability to be compacted into place in a dense mass. The mechanical float is widely used on industrial floors to compact the concrete. This equipment consists of a large rotating disc on which is mounted a heavy motor. As it travels over the surface it compacts the concrete and irons out the irregularities. Some floors are made smooth by machine grinding after the concrete has hardened sufficiently to withstand the grinding action without dislodgement of aggregate particles. In preparing a surface for grinding, it is only necessary to float and trowel lightly without attempting to obtain other than a uniform and level plane.

Chemical hardeners will further add to the resistance to wear and dusting. It is important that the hardener be considered only as a treatment of sound, properly handled concrete and not—as there is a temptation to do—as a cure-all for improperly built concrete floors or as a camouflage for careless work. In general, these hardeners tend to fill the pores in the finish and to produce a more dense topping either by chemical reaction with the cement or by acting as a filler. Magnesium fluosilicate, sodium silicate, aluminum sulphate, zinc sulphate and various oils, gums, rosins and paraffins are marketed as hardeners.

The technology of concrete flooring is constantly widening; for the appreciation of concrete as a floor material is rapidly growing and new types of installation are being made. The basic principles of concreting, however, are now so firmly established that the architect may proceed with confidence that his conceptions will be well realized.

SKETCH BY JOSEPH MASON REEVES

« « « « With the Architects » » » »

TO BUILD WAREHOUSE

The Steelform Contracting Company, C. E. Hopkins, manager, has had plans prepared for a one and two-story reinforced concrete and wood frame warehouse, office building and storage shed by L. H. Nishkian, Underwood Building, San Francisco. The new location will be on Harrison Street at Veronica Place. The company's former quarters have been sold to the state to make room for the new Bay Bridge approach.

NAMED CONSULTING ARCHITECT

Reginald D. Johnson, architect of Los Angeles, has been named consulting architect on the Santa Barbara Post Office Building, plans for which are being prepared in Washington, D.C. The Government will spend $445,000 on the building. Mr. Johnson will also act in a consulting capacity on 27 other Federal building projects in Southern California.

ALL STEEL HOUSE

One of the interesting buildings at the California Pacific International Exposition is the house constructed by Palmer Steel Buildings, Inc., of Los Angeles. The house, a 20 by 60 foot dwelling of the California bungalow type, is constructed entirely of fabricated steel. It is located adjacent to the Federal Housing Administration exhibit in the rear of the Palace of Better Housing.

ALAMEDA SCHOOLS

Working drawings are being prepared by H. A. Minton, Kent & Hass, and Carl Werner, with L. H. Nishkian, Earl Russell and Harold Hammill, structural engineers, for structural and miscellaneous changes to the various school buildings in Alameda.

CARMEL THEATER

Construction of a new theater at Carmel to replace the one recently destroyed by fire is announced by the Monterey Theaters Company, represented by H. Emmick, 25 Taylor Street, San Francisco. The plans are being prepared by S. Charles Lee, of Los Angeles. Salih Brothers will be the contractors.

MODERNIZE SAN JOSE BUILDING

The three story Class C store and office building owned by the Phelan Estate in San Jose is to be extensively overhauled and modernized from plans by William I. Garren, 233 Post Street, San Francisco. The third story will be eliminated and the entire front of the building will be stuccoed. About $40,000 will be expended on the improvements.

SAN FRANCISCO RESTAURANT

Plans have been completed by A. R. Williams, Mercedes Building, San Francisco, and W. Adrian, structural engineer, for a waffle shop, cocktail lounge and bar on Powell Street, near Sutter, San Francisco. The interior fixtures will be walnut. Improvements will cost $30,000.

BURLINGAME RESIDENCE

Plans have been completed by W. W. Wurster, 260 California Street, San Francisco, for a modern style dwelling in Burlingame for George Pope. Mr. Wurster has also lately completed drawings for two other substantial homes in the Peninsula District.

SIX HOUSES FOR ATHERTON

Edwin L. Snyder, 2101 Addison Street, Berkeley, is designing six homes for a client in a new residence tract in Atherton, the houses to cost from $5000 to $6000 each. Mr. Snyder has also completed drawings for a redwood rustic dwelling in Orinda for Mrs. Maria Bennett.

BRANCH BANK BUILDING

Construction has started on a one-story reinforced concrete and marble bank building for the San Francisco Bank at the southwest corner of West Portal Avenue and Ulloa Street, San Francisco. W. D. Peugh, 333 Montgomery Street, San Francisco, is the architect.

SORORITY HOUSE

Bakewell & Weihe, 251 Kearny Street, San Francisco, have completed working drawings for a $13,000 sorority house to be built in Stanford University Campus, Palo Alto.

PERSONAL

JOSEPH WOHLEB, architect with office in the Chambers Block, Olympia, has been made president of the Olympia Baseball Club in the Southwest Washington Timber League.

GEO. WELLINGTON STODDARD, architect of Seattle, has established a branch office in the Security Building, Olympia, Washington.

DONALD J. STEWART, until recently associated with Wilfred Higgins, architect of Portland, Oregon, has opened an office at 707½ Main Street, Vancouver, Washington, for the practice of architecture.

HETH WHARTON, architect, has moved from 6237 Drexel Avenue to 6233 Wilshire Boulevard, Los Angeles.

ROBERT H. ORR of Los Angeles, attended the convention of State Societies of Architects and Institute of Architects at Milwaukee

SCHOOL PLANS COMPLETED

Plans have been completed in the office of William H. and Harold Weeks, Underwood Building, San Francisco, for a new academic building at Taft, addition to the Santa Rosa High School, structural changes to the Watsonville High School and a gymnasium and auditorium at Ripon.

OAKLAND ARCHITECTS BUSY

Williams & Wastell have recently completed drawings for a $22,000 residence in Piedmont, also a seven-room dwelling on Sea View Avenue, Piedmont, a small factory in Emeryville, and a $5000 home in Rockridge.

OFFICE AND SALES BUILDING

At Paso Robles, the Santa Maria Gas Company will erect a new office and salesroom building from plans being prepared by Louis N. Crawford, of Santa Maria. H. J. Brunnier, Sharon Building, San Francisco, is the structural engineer. Construction will be of steel and concrete.

SANTA YNEZ SCHOOL

A group of four frame and stucco buildings for the Santa Ynez School District has been designed by E. Keith Lockard, architect, of Santa Barbara. Contracts will be awarded this month. There is approximately $94,000 available.

RETURNS FROM ABROAD

Paul Thiry, architect of Seattle, has recently returned from a trip around the world. He visited India, Italy and France.

ARCHITECTS CHANGE PERSONNEL

Whitehouse, Stanton and Church, architects, announce the dissolution of their partnership on May 31, 1935.

Glenn Stanton has opened his own office at 528 Railway Exchange Building, Portland, Oregon.

Morris H. Whitehouse and Walter E. Church will continue to practice architecture at 619 Railway Exchange Building as Whitehouse and Church.

SEATTLE CLUB

The Seattle Architectural Club has regular meetings every Wednesday noon at Cook's Restaurant, 1117 Second Avenue, to discuss current problems of the younger men in the profession. Elso B. Di Luck is president, and Kay Mealy secretary.

J. LISTER HOLMES WINNER

First prize for the best design of a seven-room house in the modern style was awarded to J. Lister Holmes, New World Life Building, Seattle. The competition was sponsored by the Puget Mill Co., Walker Building, Seattle, developer of Broadmoor Residential Park.

BERKELEY RESIDENCE

Theodore G. Ruegg, 1515 Tyler Street, and Whitecotton Building, Berkeley, has completed plans for a six-room $6000 residence for Mrs. Sherman W. Gibbs to be built on San Lorenzo Avenue, Berkeley.

SAN FRANCISCO HOME

A two-story frame and stucco house will be built on Yerba Buena Avenue, San Francisco, for Mrs. H. B. King at a cost of $8500. Martin J. Rist, Phelan Building, San Francisco, is the architect.

NEW STATE HOSPITAL UNIT

Four additional units are to be built at once to the Camarillo State Hospital at Ventura County, from plans by George B. McDougall, state architect. Bids are scheduled to be opened in Sacramento Tuesday, July 2d.

SORORITY HOUSE ALTERATIONS

Charles K. Sumner, has completed drawings for alterations to the Delta Gamma Sorority House at Stanford University, estimated to cost $15,000.

PAUL CRET WINS COMPETITION

The Federal Reserve Board on Saturday, May 18, selected Paul P. Cret of Philadelphia, Pa., as the architect for the new Federal Reserve Board Building on Constitution Avenue, Washington, D.C.

Mr. Cret was chosen by a jury on the basis of designs submitted by nine architects, including Arthur Brown, Jr., of San Francisco, who were invited to participate in a competition which was announced February 1. The jury's choice was approved by the Federal Reserve Board. The design and material of the exterior of the building are subject to the approval of the Fine Arts Commission.

The jury which passed upon the designs was composed of three architects and two laymen. The architects were John W. Cross, New York City; William Emerson, Dean of the School of Architecture, Massachusetts Institute of Technology, Boston, Massachusetts, and John Mead Howells, New York City. The other members of the jury were Frederic A. Delano, Chairman of the National Capital Park and Planning Commission, and Adolph C. Miller, a member of the Federal Reserve Board.

The program for the competition was prepared under the direction of Everett V. Meeks, Dean of the School of Fine Arts, Yale University, who also served as professional adviser.

In indicating its views as to the general architectural character of the building the Commission stated that "the nature of the functions performed by the Federal Reserve Board dictates an architectural concept of dignity and permanence. It must, consequently, have impressive dignity".

The program also referred to the fact that the proximity of the proposed building to the Lincoln Memorial and other permanent structures already erected on Constitution Avenue suggested that the exterior design of the building be in harmony with its environment.

While the Board did not attempt to dictate to the competitors in the matter of style, it was indicated that the aesthetic appeal of the exterior design should be made through dignity of conception, purity of line, proportion and scale rather than through decorative or monumental features and the program quoted the view of the Commission of Fine Arts that "the Federal Reserve Board building must be in general accord with the governmental buildings in Washington—it must seem at home in the city."

The winning design projects a building which fulfills admirably the above desired elements and in addition solves in masterly fashion the program as developed to meet not only the present but also reasonable future needs of the Board.

SCORES ENGLISH ARCHITECTS

Aubrey Hammond, one of London's foremost scenic designers and a black-and-white artist of note, in a recent Associated Press interview, blistered British architects for their lack of originality.

Hammond characterized England's architects as wooden, soulless and dull.

"From my hotel window," he said, "I look out upon your New York and from the boldness and energy of the buildings that I see I pick up in halt an hour more inspiration than in a whole year in London.

"In England, the architect fellows resist innovations to the bitter end. London looks architecturally like something the cat dragged in. Much as I love London, I see no hope for her until British architects cease being stubborn ancestor worshippers and awaken to the beauties and genius of architecture in other parts of the world.

"American architects do not hesitate to incorporate the beauties of other nation's architecture in their own designs, yet their work remains original and thoroughly American."

LANDSCAPE ARCHITECT MOVES

Butler S. Sturtevant, member of the American Society of Landscape Architects, who planned the Annual Spring Garden Show held in the Oakland Exposition Auditorium in April, has established San Francisco offices in the Shreve Building. Mr. Sturtevant retains supervision of landscaping for the University of Washington through his Seattle office in the New World Life Building. Another large landscaping project under Mr. Sturtevant's direction is the 2,600 acre site of Principia College, Illinois.

OPENS SAN FRANCISCO OFFICE

The Heinsbergen Decorating Company, 7415 Beverly Boulevard, Los Angeles, has established permanent offices in San Francisco at 401 Russ Building. This company already has a number of important commissions in Northern California, two of the most recent contracts to be completed being the mural decorations in the new Hotel Plaza bar room and the Pittsburg Theater from plans by F. Frederic Amandes, architect of San Francisco.

INTERNATIONAL CONGRESS OF ARCHITECTS

Members of The American Institute of Architects have been invited to attend the Thirteenth International Congress of Architects to be held in Rome, September 22-28. An announcement by Signor Marconi says:

"We are confident that the American architects will not fail to participate largely in this important event, and we are counting on your valued collaboration in supporting the Congress by an active propaganda and diffusion among your members.

"We are at your entire disposal in order to give you any other particulars or materials that can contribute to the greater success of the Congress."

The opening of the Congress will take place with great solemnity at the Capitol on Sept. 22nd, and the meetings will be held at the Institute of Architecture, Valle Giulia.

Visits and excursions in Rome and to the new centers of Littoria and Sabaudia and other Italian towns will be organized in order to give to the members of the Congress a clear idea of constructive and architectural activity of New Italy, as regards the development of modern organizations as well as the precious artistic inheritance of the past in the harmonious whole contemporary town planning.

Themes of the Congress include:

1. Design and production of new materials and results obtained from their use.

2. Knowledge useful to architects, both official and independent, in the study of public buildings and town planning, so that they can usefully collaborate in the carrying out of these plans, which comprise all buildings, bridges, roads, stations, etc., the whole of which contributes to the general aesthetics and town planning such as it is nowadays understood.

3. Report of the means which architects can employ so as to make various State Administrations and the public clearly understand the advantages to be obtained by resorting to their experience and direct services without the useless intervention of other persons such as Building Societies.

4. The standardization of apartment houses.

5. The underground construction, circulation and protection.

6. The protection of plans and right of architects to supervise their construction.

7. Architectural competitions and constructions of public character.

PFLUEGER FAVORS NEW PLAN

Timothy L. Pflueger, architect, of San Francisco, thinks some employment relief funds should be devoted to a comprehensive and new city plan for San Francisco.

Declaring no complete plan for the city has been made since the Burnham plan of 1905-6, Mr. Pflueger calls attention to the need of adequate city planning to keep apace with potential development following completion of the two bay bridges.

"A new and adequate plan would serve as a guide for our city departments and an aid to private interests," the architect is quoted in the daily press. "A large scale model of the entire city is indispensable in the study of the problem because of our hills and valleys.

"No one can visualize the city from a flat map. The model should accurately show all natural topography in undeveloped areas, grades of existing streets, lot sizes and developments.

"Making of a comprehensive city plan and building of the related model will provide employment for architectural and engineering draftsmen, men of various crafts who would work on the model and others who would gather and compile the data."

Mr. Pflueger has offered his services to the city in connection with development of his suggestion.

MR. BAUR ENTITLED TO CREDIT

Editor The Architect and Engineer:

I notice in the May number of The Architect and Engineer a photograph of the exterior of the Olympic Club, which is attributed to Mr. Douglas Stone as architect—I have no doubt, inadvertently. It, perhaps, has escaped your notice that this facade has recently been cleaned under the direction of Mr. Stone, but the architectural design has not been modified in any particular. Therefore, the caption is an injustice and totally misleading. The same remarks apply to the interior of the swimming pool, which has been repainted and the lining of the pool replaced. Obviously, it is improper to attribute this well known architectural design to anyone but Mr. John A. Baur, the architect who designed the club building originally.

I am sure that you would not have published this gross error had you been familiar with the circumstances, and I believe that the impression given by the illustration should be corrected in even a more emphatic manner than the mention in the original publication. As you know, your magazine has a wide distribution and it is hard to correct an original impression.

Very truly yours,
Arthur Brown, Jr.

MODERNIZE MAIN-STREET
A COMPETITION FOR ARCHITECTS

ARCHITECTS are offered an interesting outlet for creative effort in the modernization field by the "Modernize Main Street" Competition, to be conducted by *The Architectural Record* and sponsored by the Libbey-Owens-Ford Glass Company of Toledo.

A total of $11,000 in cash prizes is announced, with four first-place awards of $1,000 each, to be distributed in the four divisions of competition. Each division will carry a second prize of $750 and a third prize of $500. There also will be 40 Honorable Mentions, each receiving $50.

The problem consists of designing a new or modernization plan for existing buildings of four types familiar to Main Street of every city, town, village and community—commonly known as the food store, the drug store, the apparel shop and the automotive sales and service station.

Better merchandising demands the modernization of thousands of such shops and stores, and the better financing terms now available makes such improvement work possible for merchants everywhere. Plans submitted in the "Modernize Main Street" Competition will ,therefore, be designed for improved merchandising methods to attract the public, to enable a more up-to-date display of goods and provide so much more convenience and comfort for customers that shopping becomes a genuine pleasure.

The preferred designs will be those, the sponsors announce, that provide for shops and stores whose plate-glass show windows establish the character of the place in the eyes of the passers-by, an inviting exterior serving to induce the shopper to stop, and an interior that fulfills the promise of the front.

The competition, for architects, draftsmen and designers, will have Kenneth K. Stowell, A.I.A., as professional advisor. A program, containing all competition data and a photograph of each type of shop for which plans are to be submitted, is now available. The contest closes at 5 P.M. August 12, 1935. Judges, consisting of five architects and two experts in merchandising, will view the submitted plans beginning August 26.

FOR INSTITUTE PRESIDENT

Stephen F. Voorhees of New York, chairman of the Construction Code Authority, and Charles D. Maginnis of Boston, noted as a designer of ecclesiastical and collegiate buildings, were the two competing architects for the presidency of the American Institute of Architects at its sixty-seventh convention in Milwaukee, Wis., May 28 to 31. The winner succeeds Ernest J. Russell of St. Louis, who served two terms.

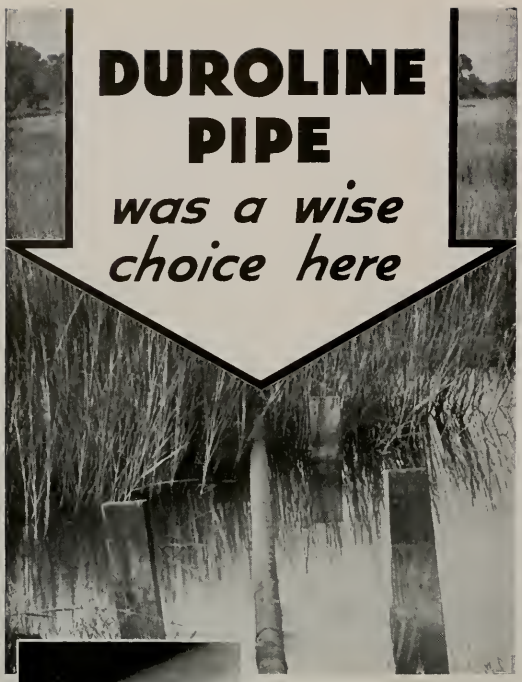
Mr. Voorhees and Mr. Maginnis were nominated by petitions of the Institute Chapters located throughout the country. Nominees for other Institute offices were:

First vice president, Louis LaBeaume of St. Louis; second vice president, M. H. Furbringer of Memphis, Tenn., and Francis P. Sullivan of Washington, D. C.; secretary, Harry F. Cunningham of Washington, D. C., and Charles T. Ingham of Pittsburgh; treasurer, Edwin Bergstrom of Los Angeles; regional director for the Middle Atlantic Division, William G. Nolting of Baltimore; regional director of the Great Lakes Division, Walter R. McCornack of Cleveland.

Mr. Maginnis was placed in nomination by members of the following Chapters: Boston, Cincinnati, Detroit, Maine, Nebraska, New Jersey, New York, Northern California, Oregon, Philadelphia, Rhode Island, St. Louis, South Texas, Tennessee, Washington, D. C.

Mr. Voorhees was nominated by members of these Chapters: Baltimore, Boston, Brooklyn, Buffalo, Central Illinois, Central New York, Chicago, Cleveland, Columbus, Delaware, Detroit, Eastern Ohio, Florida North, Florida South, Georgia, Grand Rapids, Indiana, Iowa, Kansas, Louisiana, New Jersey, New York, Northern California, Oregon, Philadelphia, Pittsburgh, Rhode Island, Scranton-Wilkes-barre, Virginia, Washington, D.C., West Texas.

Mr. Voorhees is a member of the Durable Goods Industries Committee, of the Executive Committee of the Construction League of the United States, and of the Housing Advisory Council of the Federal Housing Administration. He is a member of the firm of Voorhees, Gmelin and Walker, New York, which has designed many notable buildings including the New York Telephone Building, the Western Union Telegraph Building, the One Wall Street Building, and the Headquarters Building for



When a hot salt-water swimming pool was constructed in a southern residence, a problem which immediately confronted the engineers was the choice of material for service piping. They realized the destructive effect that hot salt water has on pipe metal. Duroline Pipe was investigated for the purpose, and very evident advantages led to the use of it in this difficult case.

Duroline is a highly protective cement lining, scientifically developed to check the destructive action of waters that rust, corrode or otherwise attack exposed pipe metal. Duroline Pipe offers the desirable features of the highest quality steel pipe, plus a new defense against corrosion and tuberculation, and the price is only slightly higher than galvanized pipe. A bulletin describes in detail the development and advantages of Duroline. Write for it!

NATIONAL TUBE COMPANY
Pittsburgh, Pa.

Pacific Coast Distributors—COLUMBIA STEEL CO., San Francisco, Calif.
Export Distributors—UNITED STATES STEEL PRODUCTS CO., New York, N. Y.

United States Steel Corporation Subsidiary

the New Jersey Telephone Company, Newark N. J.

Mr. Voorhees is the supervising architect of Princeton University. He is now director of the Institute for the New York Division; chairman of the advisory board on vocational and industrial education of the Board of Education, New York and president of the Apprenticeship Commission of the New York Building Congress.

Mr. Voorhees was born in Rocky Hill, N. J., in 1878. He attended the State Model School at Trenton, and graduated in civil engineering from Princeton in 1900. He served in the Spanish-American War as corporal, and was captain and major in the Sanitary Corps of the United States Army from 1917 to 1919.

He is a member of the American Society of Civil Engineers, the American Society of Mechanical Engineers, the Princeton Architectural Association, the Princeton Engineering Association, and the Architectural League of New York.

Mr. Maginnis is a member of the Boston architectural firm of Maginnis and Walsh, designers of the Boston College group; St. Catherine's Church, Boston; Trinity College Chapel and National Shrine, Washington, D. C.; Sulpician Seminary, Baltimore; Carmelite Convent, Santa Clara, Calif.; Novitiate buildings at Weston, Mass., and at Wernersville, Pa.; Seminary at Ossining, N. Y.; churches at East and South Orange, N. J.; Immaculate Conception Church at Waterbury, Conn.; and church at Chevy Chase, Md. Maginnis and Walsh are engaged in the completion of the Cathedral of St. Paul, Minn.

Mr. Maginnis was born in Londonderry, Ireland, in 1867. He attended Cusack's Academy, Dublin, and won the Queen's prize in mathematics at South Kensington, London, in 1883. He came to America in 1885. He holds the honorary degree of doctor of laws from Boston College and Holy Cross College. He is first vice president of the American Institute of Architects, president of the Liturgical Arts Society, a trustee of the Museum of Fine Arts, Boston; and fellow of the American Academy of Arts and Sciences and of the Royal Society of Arts, London. He is a former chairman of the Massachusetts State Art Commission and of the Municipal Art Commission of Boston, and a former president of the Boston Society of Architects.

Mr. Maginnis is a Laetare medalist; his firm has been awarded the Institute's gold medal for ecclesiastical architecture, the J. Harleston Parker gold medal, the Washington Chamber of Commerce bronze medal, and the diploma of honor at Budapest.

Up to time of going to press no word had been received from Milwaukee regarding the outcome of the election.

STEEL INDUSTRY SHOWS LOSSES

The steel construction industry experienced its worst volume and prices during the past three years, according to a statement made public by the American Institute of Steel Construction.

Despite the large expenditures for public works the sale of fabricated structural steel has not recovered. The tonnage of fabricated structural steel sold for city, state and Federal projects during 1933 and 1934 was appreciably less than that volume sold for similar projects in 1930, 1931 or 1932.

The low point of production was recorded during the calendar year of 1933. The low point of unit price was recorded during the years 1932 and 1933. During 1934 the total volume of steel construction sold for public and private works was comparable to that volume sold in 1932. While there had been a slight recovery in the unit price of erected steel, this was not sufficient to compensate the industry for the increase in the cost of the plain material.

The records show that for the period prior to the depression what is known as public works was a minor factor. Steel construction sold to the cities constituted by far the major volume, with state work following second and Federal works occupying but a minor place.

The volume of public works reached its maximum in the years 1930 and 1931. The volume of structural steel in public works in 1932, 1933 and 1934 began to drop back perceptibly. State construction is today by far the most important.

Taking the price at which fabricated structural steel was sold and erected in 1926 as 100, we find that the prices received during 1923, 1924 and 1925 were slightly better than this, but were less during 1927 and 1928. The price received for fabricated structural steel erected in 1929 approximated the 1926 level.

Profits, however, were sacrificed during succeeding years. The price at which structural steel was sold in 1930 was 90% of the 1926 level. It dropped to 83% in 1931 and to 69% in 1932. With the advent of the hot steel code the price of plain material advanced in 1933 and held firm during 1934, and while the costs of material and labor went up appreciably during these two years, the price level failed to improve in like proportion. The price at which erected structural steel sold in 1933 was but 70% of the 1926 level and in 1934 it was but 78% of that normal.

TWENTY-FIVE YEARS OF PRACTICE

Honoring A. H. Albertson, Joseph W. Wilson and Paul Richardson on the completion of 25 years of architectural practice together, former employees, close friends and engineering associates of the three tendered them a surprise banquet Saturday evening, May 18.

Arthur Loveless officiated as toastmaster. Vaudeville stunts, presenting in allegorical form events during the life of the firm, were given. The principal address of the evening was delivered by Prof. W. R. B. Willcox, head of the college of architecture of the University of Oregon.

Mr. Albertson came to Seattle in 1907 as the representative of Howells & Stokes, New York architects. Mr. Wilson joined him later in the same year and was followed by Mr. Richardson on May 18, 1910, which date the dinner commemorated. The firm later became Howells & Albertson, then A. H. Albertson, and finally Albertson, Wilson & Richardson.

Perhaps the best known buildings from the firm's long list of notable work are the Northern Life Tower and St. Joseph's Catholic church in Seattle. Less known to the profession in general, but even more appreciated by those of the inner circle of friends, is the firm's generous treatment of its "office family" and its policy of encouragement and helpfulness to the younger men in the profession.

HILLSBOROUGH PARK HOME

Harold G. Stoner, recently completed drawings for a two-story frame and stucco dwelling to be built in Hillsborough Park, San Mateo County, for George Taylor. Improvements will cost approximately $20,000.

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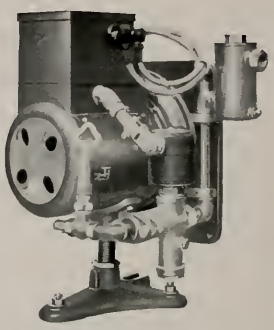
Seattle Portland Spokane



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407 American Bank Bldg.

SEATTLE
619 Mutual Life Bldg.

STANLEY SW

Estimator's Guide

Giving Cost of Building Materials, Wage Scale, Etc.

In many instances NRA prices are still in force. Some chiseling may be looked for shortly. Another month may find some material changes in price quotations. Amounts quoted are figuring prices and are made up from average quotations furnished by material houses to three leading contracting firms of San Francisco.

NOTE—Add 2½% Sale Tax on all materials but not labor. Lumber prices slightly lower.

All prices and wages quoted are for San Francisco and the Bay District. There may be slight fluctuation of prices in the interior and southern part of the state. Freight cartage, at least, must be added in figuring country work.

Bond—1½% amount of contract.

Brickwork—
Common, $35 to $40 per 1000 laid, (according to class of work).
Face, $75 to $90 per 1000 laid, according to class of work).
Brick Steps, using pressed brick, $1.10 lin. ft.
Brick Walls, using pressed brick on edge, 60c sq. ft. (Foundations extra.)
Brick Veneer on frame buildings, $.75 sq. ft.
Common, f. o. b. cars, $15.00 job cartage.
Face, f.o.b. cars, $45.00 to $50.00 per 1000, carload lots.

HOLLOW TILE FIREPROOFING (f.o.b. job)
3x12x12 in. ..... $ 84.00 per M
4x12x12 in. ..... 94.50 per M
6x12x12 in. ..... 126.00 per M
8x12x12 in. ..... 225.00 per M

FOLLOW BUILDING TILE (f.o.b. job) carload lots).
8x12x5½ ..... $ 94.50
6x12x5 ½ 73.50
Discount 5%.

Composition Floors — 18c to 35c per sq. ft. In large quantities, 16c per sq. ft. laid.
Mosaic Floors—80c per sq. ft.
Duraflex Floor—23c to 30c sq. ft.
Rubber Tile—50c per sq. ft.
Terazzo Floors—45c to 60c per sq. ft.
Terazzo Steps—$1.60 lin. ft.

Concrete Work (material at San Francisco bunkers) — Quotations below 2000 lbs. to the ton. $2.00 delivered.

No. 3 rock, at bunkers..... $1.65 per ton
No. 4 rock, at bunkers..... 1.65 per ton
Elliott top gravel, at bnkrs. 1.75 per ton
Washed gravel, at bunkrs 1.75 per ton
Elliott top gravel, at bnkrs. 1.75 per ton
City gravel, at bunkers..... 1.40 per ton
River sand, at bunkers..... 1.50 per ton
Delivered bank sand..... 120 cu. yd.

Note—Above prices are subject to discount of 10c per ton on invoices paid on or before the 15th of month. following delivery.

SAND
Del Monte, $1.75 to $3.00 per ton.
Fan Shell Beach (car lots, f. o. b. Lake Majella), $2.75 to $4.00 per ton.
Cement, $2.25 per bbl. in paper sks.
Cement (f.o.b.) Job. S.F.) $2.90 per bbl.
Cement (f.o.b. Job, Oak.) $2.90 per bbl.
Rebate of 10 cents bbl. cash in 15 days.
Calaveras White ... $6.00 per bbl.
Medusa White ..... $8.00 per bbl.
Forms, Labors average 25.00 per M
Average cost of concrete in place, exclusive of forms, 30c per cu. ft.
4-inch concrete basement floor..... 12½c to 14c per sq. ft.
4½ inch Concrete Basement floor ..... 14½c to 16c per sq. ft.
2-inch rat-proofing.... 6½c per sq. ft.
Concrete Steps ..... $1.25 per lin. ft.

Dampproofing and Waterproofing—
Two-coat work, 15c per yard.
Membrane waterproofing—4 layers of saturated felt, $4.00 per square.
Hot coating work, $1.80 per square.
Meduca Waterproofing, 15c per lb., San Francisco Warehouse.

Electric Wiring—$12.00 to $15.00 per outlet for conduit work (including switches).
Knob and tube average $7.00 per outlet, including switches.

Elevators—
Prices vary according to capacity, speed and type. Consult elevator companies. Average cost of installing an automatic elevator in four-story building, $2800; direct automatic, about $2700.

Excavation—
Sand, 50 cents; clay or shale, 80c per yard.
Teams, $10.00 per day.
Trucks, $18 to $25 per day.
Above figures are an average without water. Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

Fire Escapes—
Ten-foot balcony, with stairs, $75.00 per balcony, average.

Glass (consult with manufacturers)—
Double strength window glass. 15c per square foot.
Quartz Lite, 50c per square foot.
Plate 75c per square foot.
Art, $1.00 up per square foot.
Wire (for skylights), 35c per sq. foot.
Obscure glass, 26c square foot.
Note—Add extra for setting.

Heating—
Average, $1.90 per sq. ft. of radiation, according to conditions.

Iron—Cost of ornamental iron, cast iron, etc., depends on designs.

Lumber (prices delivered to bldg. site)

No. 1 common	$33.00 per M
No. 2 common	27.00 per M
Selection O. P. common	37.00 per M
2x4 No. 3 form lumber	17.00 per M
1x4 No. 2 flooring VG	48.00 per M
1x4 No. 3 flooring VG	42.00 per M
1x6 No. 2 flooring VG	48.00 per M
1¼x4 and 6, No. 2 flooring	52.00 per M

Slash grain—

1x4 No. 2 flooring	$39.00 per M
1x4 No. 3 flooring	34.00 per M
No. 1 common run T. & G.	30.00 per M
Lath	5.00 per M

Shingles (add cartage to prices quoted)—

Redwood, No. 1	$ 1.00 per bdle.
Redwood, No. 2	.80 per bdle.
Red Cedar	.95 per bdle.

Hardwood Flooring (delivered to building)—

13-16x3¼" T & G Maple	$120.00 M ft.		
1 1-16x2¼" T & G Maple	132.00 M ft.		
⅞x3½ sq. edge Maple	140.00 M ft.		
	13-16x2¼" T&G	¾x2" T&G	5-16x2" Sq.Ed.
Clr. Qtd. Oak	$200.00 M	$150.00 M	$180 M
Sel. Qtd. Oak	140.00 M	120.00 M	135 M
Clr. Pla. Oak	135.00 M	107.00 M	120 M
Sel. Pla. Oak	120.00 M	88.00 M	107 M
Clear Maple	140.00 M	100.00 M	
Laying & Finishing	13c ft.	11 ft.	10 ft.

Wage—Floor layers, $7.50 per day.

Building Paper—

1 ply per 1000 ft. roll	$3.50
2 ply per 1000 ft. roll	5.00
3 ply per 1000 ft. roll	6.25
Brownskin, 500 ft. roll	4.20
Pro-tect-o-mat, 1000 ft. roll	12.00
Sisalkraft, 500 ft. roll	5.00
Sash cord com. No. 7	$1.20 per 100 ft.
Sash cord com. No. 8	1.50 per 100 ft.
Sash cord spot No. 7	1.90 per 100 ft.
Sash cord spot No. 8	2.25 per 100 ft.

Sash weights cast iron, $50.00 ton
Nails, $3.50 base.
Sash weights, $45 per ton.

Millwork—
O. P. $100.00 per 1000. R. W., $106.00 per 1000 (delivered).
Double hung box window frames, average, with trim, $6.50 and up, each.
Doors, including trim (single panel. 1¾ in. Oregon pine) $8.00 and up, each.
Doors, including trim (five panel. 1¾ in. Oregon pine) $6.50 each.
Screen doors, $4.00 each.
Patent screen windows, 25c a sq. ft.
Cases for kitchen pantries seven ft. high, per lineal ft., $6.50 each.
Dining room cases, $7.00 per lineal foot.
Labor—Rough carpentry, warehouse heavy framing (average), $12.00 per M.
For smaller work average. $27.50 to $35.00 per 1000.

Marble—(See Dealers)

Painting—
Two-coat work ..... 29c per yard
Three-coat work .....40c per yard
Cold Water Painting .....10c per yard
Whitewashing ..... 4c per yard
Turpentine, 80c per gal., in cans and 75c per gal. in drums.
Raw Linseed Oil—80c gal. in bbls.
Boiled Linseed Oil—85c gal. in bbls.
Medusa Portland Cement Paint, 20c per lb.

Carter or Dutch Boy White Lead in Oil (in steel kegs).

	Per Lb.
1 ton lots, 100 lbs. net weight	10¾c
500 lb. and less than 1 ton lots	11c
Less than 500 lb. lots	11½c

Dutch Boy Dry Red Lead and Litharge (in steel kegs).

1 ton lots, 100 lb. kegs, net wt.	10¾c
500 lb. and less than 1 ton lots	11c
Less than 500 lb. lots	11½c

Red Lead in Oil (in steel kegs)

1 ton lots, 100 lb. keg s,net. wt.	12½c
500 lb. and less than 1 ton lots	12½c
Less than 500 lb. lots	13c

Note—Accessibility and conditions cause wide variance of costs.

Patent Chimneys—

6-inch	$1.00	lineal foot
8-inch	1.50	lineal foot
10-inch	1.75	lineal foot
12-inch	2.00	lineal foot

Plastering—Interior—

	Yard
1 coat, brown mortar only, wood lath	$0.60
2 coats, lime mortar hard finish, wood lath	.70
2 coats, hard wall plaster, wood lath	$ .80
3 coats, metal lath and plaster	1.25
Keene cement on metal lath	1.30
Ceilings with ¾ hot roll channels metal lath	.75
Ceilings with ¾ hot roll channels metal lath plastered	1.50
Shingle partition ¾ channel lath 1 side	.85
Single partition ¾ channel lath 2 sides 2 inches thick	2.75
4-inch double partition ¾ channel lath 2 sides	1.30
4-inch double partition ¾ channel lath 2 sides plastered	3.00

Plastering—Exterior—

	Yard
2 coats cement finish, brick or concrete wall	$1.10
2 coats Atlas cement, brick or concrete wall	1.35
3 coats cement finish No. 18 gauge wire mesh	1.50
3 coats Medusa finish No. 18 gauge wire mesh	2.00

Wood lath, $5.50 per 1000.
2.5-lb. metal lath (dipped) ..... .17
2.5-lb. metal lath (galvanized) ..... .20
3.4-lb. metal lath (dipped) ..... .22
3.4-lb. metal lath (galvanized) ..... .28
¾-inch hot roll channels, $72 per ton.
Finish plaster, $15.90 ton; in paper sacks.
Dealer's commission, $1.00 off above quotations.
$13.35 (rebate 10c sack).
Lime, f.o.b. warehouse, $2.25bbl.; cars, $2.15
Lime, bulk (ton 2000 lbs.). $16.00 ton.
Wall Board 5 ply, $50.00 per M.
Hydrate Lime, $19.50 ton.
Plasterers Wage Scale ..... $1.25 per hour
Lathers Wage Scale ..... 1.25 per hour
Hod Carriers Wage Scale ..... 1.10 per hour

Composition Stucco—$1.60 to $2.00 sq. yard (applied).

Plumbing—
From $65.00 per fixture up, according to grade, quantity and runs.

Roofing—
"Standard" tar and gravel, $6.00 per sq. for 30 sqs. or over.
Less than 30 sqs. $6.50 per sq.
Tile, $20.00 to $35.00 per square.
Redwood Shingles, $11.00 per square in place.
Cedar Shingles, $10 sq. in place.
Recoat, with Gravel, $3.00 per sq
Slate, from $25.00 to $60.00 per sq. laid, according to color and thickness.

Sheet Metal—
Windows—Metal, $2.00 a sq. foot.
Fire doors (average), including hardware. $2.00 per sq. ft.

Skylights—
Copper, 90c sq. ft. (not glazed).
Galvanized iron, 25c sq. ft. (not glazed).

Steel—Structural
$100 ton (erected), this quotation is an average for comparatively small quantities. Light truss work higher. Plain beams and column work in large quantities $80 to $90 per ton cost of steel; average building, $89.00.

Steel Reinforcing—
$85.00 per ton, set, (average).

Stone—
Granite, average, $6.50 cu. foot in place.
Sandstone, average Blue, $4.00, Boise, $3.00 sq. ft. in place.
Indiana Limestone, $2.80 per sq. ft. in place.

Store Fronts—
Copper sash bars for store fronts. corner, center and around sides. will average 75c per lineal foot.
Note—Consult with agents.

Tile — Floor, Wainscot, Etc. — (See Dealers).

SAN FRANCISCO BUILDING TRADES WAGE SCALE

Established by The Impartial Wage Board November 9, 1932. Effective on all work January 1, 1933, to remain in effect until June 30, 1933, and for so long thereafter as economic conditions remain substantially unchanged.

This scale is based on an eight-hour day and is to be considered as a minimum and employees of superior skill and craft knowledge may be paid in excess of the amounts set forth herein.

CRAFT	Journeyman Mechanics
Asbestos Workers	$6.40
Bricklayers	9.00
Bricklayers' Hodcarriers	5.60
Cabinet Workers (Outside)	7.20*
Caisson Workers (Open) Water Work	8.00
Carpenters	7.20*
Cement Finishers	7.20
Cork Insulation Workers	7.20
Electrical Workers	8.00
Electrical Fixture Hangers	7.00
Elevator Constructors	8.68
Elevator Constructors' Helpers	6.08
Engineers, Portable and Hoisting	8.00
Glass Workers (All Claesifications)	6.80
Hardwood Floormen	7.20*
Housemovers	6.40
Housesmiths, Architectural Iron (Outside)	7.20
Housesmiths, Reinforced Concrete, or Rodmen	7.20
Iron Workers (Bridge and Structural)	9.60
Iron Workers (Hoisting Engineers)	10.00
Laborers (6-day week)	5.00
Lathers, Channel Iron	8.00
Lathers, All Other	6.80
Marble Setters	8.00
Marble Setters' Helpers	5.00
Millwrights	7.20*
Mosaic and Terrazzo Workers (Outside)	7.20
Mosaic and Terrazzo Helpers	5.00
Painters	7.00
Painters, Varnishers and Polishers (Outside)	7.00
Pile Drivers and Wharf Builders	$ 8.00
Pile Drivers Engineers	9.00
Plasters and Hodcarriers (See wage scale under Plastering).	
Plumbers	8.00
Roofers (All classifications)	6.40
Sheet Metal Workers	7.20
Sprinkler Fitters	9.00
Steam Fitters	8.00
Stair Builders	7.20*
Stone Cutters, Soft and Granite	6.80
Stone Settere, Soft and Granite	8.00
Stone Derrickmen	7.20
Tile Setters	8.00
Tile Setters' Helpers	5.00
Tile, Cork and Rubber	7.20
Welders, Structural Steel Frame on Buildings	9.60
Welders, All Others on Buildings	8.00
Auto Truck Drivers—Less than 2,500 lbs.	5.50
Auto Truck Drivers—2,500 lbs. to 4,500 lbs.	6.00
Auto Truck Drivers—4,500 lbs. to 6,500 lbs.	6.50
Auto Truck Drivers—6,500 lbs. and over	7.00
General Teamsters, 1 Horse	5.50
General Teamsters, 2 Horses	6.00
General Teamsters, 4 Horses	6.50
Plow Teamsters, 4 Horses	6.50
Scraper Teamsters, 2 Horses	6.00
Scraper Teamsters, 4 Horses	6.00

*Established by Special Board

GENERAL WORKING CONDITIONS

1. Eight hours shall constitute a day's work for all crafts, except as otherwise noted.
2. Where less than eight hours are worked pro rata rates for such shorter period shall be paid.
3. Plasterers' Hodcarriers, Bricklayers' Hodcarriers, Roofers' Laborers and Engineers, Portable and Hoisting, shall start 15 minutes before other workmen, both at morning and at noon.
4. Five days, consisting of not more than eight hours a day, on Monday to Friday inclusive, shall constitute a week's work.
5. The wages set forth herein shall be considered as net wages.
6. Except as noted the above rates of pay apply only to work performed at the job site.
7. Transportation costs in excess of twenty-five cents each way shall be paid by the contractor.
8. Traveling time in excess of one and one-half hours each way shall be paid for at straight time rates.
9. Overtime shall be paid as follows: For the first four hours after the first eight hours, time and one-half. All time thereafter shall be paid double time. Saturdays (except Laborers), Sundays and Holidays from 12 midnight of the preceding day, shall be paid double time. Irrespective of starting time, overtime for Cement Finishers shall not commence until after eight hours of work.
10. On Saturday Laborers shall be paid straight time for an eight-hour day.
11. Where two shifts are worked in any twenty-four hours, shift time shall be straight time. Where three shifts are worked, eight hours' pay shall be paid for seven hours on the second and third shifts.
12. All work, except as noted in paragraph 13, shall be performed between the hours of 8 A. M. and 5 P. M.
13. In emergencies, or where premises cannot be vacated until the close of business, men reporting for work shall work at straight time. Any work performed on such jobs after midnight shall be paid time and one-half up to four hours of overtime and double time thereafter (provided, that if a new crew is employed on Saturdays, Sundays or Holidays which has not worked during the five preceding working days, such crew shall be paid time and one-half. No job can be considered as an emergency job until it has been registered with the Industrial Association and a determination has been made that the job falls within the terms of this section).
14. Recognized holidays to be: New Year's Day, Decoration Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Christmas Day.
15. Men ordered to report for work, for whom no employment is provided shall be entitled to two hours' pay.
16. This award shall be effective in the City and County of San Francisco.

NOTE: Provision of paragraph 13 appearing in brackets ( ) does not apply to Carpenters, Cabinet Workers (Outside), Hardwood Floormen, Millwrights, or Stair Builders.

BUILDING RECORD FOR H. H. BARTER

Construction activities at the California Pacific International Exposition, which opened May 29 in San Diego with many new and ornate buildings erected, landscaped, ornamentally lighted and equipped in 105 days' time, marked a record for major projects of this kind.

It has been particularly noteworthy that practically all members of the department of works at America's Exposition were recruited from the city of San Diego. That the huge works program was expedited as speedily and efficiently as it was is attributable to the zeal, capabilities and general "team work" shown by the entire personnel.

H. H. Barter, manager of construction and maintenance in the department of works at the World's Fair—1935, has seen wide and varied service in the building field. His travels as an engineer on construction and utility projects has taken him all over the United States and much of Alaska since his graduation from the University of Illinois in 1904.

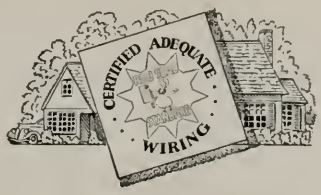
Early associating himself with the Stone & Webster Co. of Boston, Mass., he was dispatched to the West for field service with hydraulic projects in Nevada and Washington. At one time he built a railroad running from Nome, Alaska, into a back country district believed to be promising as a site for gold mining operations. That the "pay dirt" never developed in sufficient quantity to make the railroad profitable was no fault of the road's construction engineers.

In 1909 the Stone & Webster Co. loaned H. H. Barter to the Alaska-Yukon Exposition management in Seattle, Wash., to direct electrical engineering and other construction policies at that fair in the gateway city to Alaska.

He also served in charge of building operations on the White River power project located in the neighborhood of Seattle, a major utilities enterprise.

During the world war, Mr. Barter was identified with construction of the world's largest shipyards at Hog Island, Pa. — an American International Shipbuilding Corporation plant. During his employment at Hog Island he served as general superintendent of utilities in charge of the building of the water and sewer system, electrical system, roads, drains and compressed air lines.

His talents in engineering and construction supervision also drew Mr. Barter to Hollywood and the motion picture industry. At one time in his career he was technical director and plant manager for the Universal Pictures Corporation. He was assistant general manager of Paramount studios from 1921 to 1926. While chief engineer for the First National Pictures Corporation, he supervised construction of a $1,000,000 studio for the concern at Burbank, Calif. He also designed.



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built and managed a $1,000,000 studio for United Artists Corporation in Hollywood.

Another highlight in the constructional career of Mr. Barter was his feat of building houses for 2,000 athletes at Olympic Village in Los Angeles during the 1932 Olympic games. This was an example of highly efficient structural engineering in a limited period of time.

Latterly, Mr. Barter has been engaged in supervision of the entire Federal Better Housing building operations in Los Angeles County.

NEW GRANTS ON P. W. PROJECTS

Developments in the $4,000,000,000 work-relief program await the functioning of the state branches of the Federal Public Works Administration now being set up in the PWA state offices for preliminary examination of non-Federal work-relief projects in the respective states.

The California state offices in Los Angeles, 805 Washington Building, and in the Russ Building, San Francisco, have been advised by wire from Washington headquarters, that non-Federal projects under the new public works act will be financed on the basis of a 55 per cent loan and a 45 per cent grant. Under the National Recovery Act grants up to 30 per cent of the cost of labor and material were made on PWA projects. Loans will be made on 3 per cent interest instead of 4 per cent, the former PWA rate.

The official announcement of the new terms for loans and grants on public works projects says:

"Such action is designed to make it easier for communities to borrow funds on collateral security from PWA instead of requesting outright all-Federal grants, thus helping to carry out the President's objective of seeing as large a portion as possible of the funds returned to the Treasury."

Applications for loans and grants on non-Federal projects under the new public works act are now being received at the state office in Los Angeles and the plans and data submitted with them are being checked. D. A. Wilder, PWA state engineer, is acting state director under the new organization.

The allotment of $249,860,000 to the housing division of the PWA made by the advisory committee on allotments covers 67 slum clearance and low rent housing projects for which $110,000,000 funds of the housing division have been impounded and 31 projects for which new applications have been filed. All allotments are tentative, the ultimate development of each depending on the ability of the housing commission to assemble sites at a price which will permit the construction of true low-rent housing . One of the Los Angeles housing projects, which has not been publicly designated, is said to be included in the list.

Interest has been aroused in the Wisconsin state works-relief program for which an allotment of $100,000,000 has been recommended to the President by the advisory committee. The allotment would be made conditional upon the state raising the remainder of the necessary fund, arranging to repay the Federal government $30,000,000 of the $100,000,000, and upon the state's enacting satisfactory enabling legislation. It is contemplated that the projects proposed would take care of all the relief problems of the state.

The state program calls for $40,000,000 for urban low-cost housing; $25,000,000 evenly divided between state trunk roads and town roads; $15,000,000 for 67 CCC camps; $4,000,000 for a resettlement of 1,500 families now on sub-marginal land, and $10,000,000 for state buildings.

Other items in the program are: Conservation of natural resources, $4,000,000; land liming, $3,500,000; soil erosion control, $3,000,000; marketing educational service, $1,000,000; rural electrification, $5,000,000; rural housing, $10,000,000; state planning board, $5,675,000, and administration, $4,000,000.

California has been divided into 12 districts by Harry L. Hopkins, director of the Federal Works Progress Division, for the study of local unemployment conditions and recommending the type and number of projects necessary to provide work for employables now on relief rolls. These districts will report direct to Washington on the effectiveness of the work-relief program. Director Hopkins has announced a list of 307 such districts that will be established throughout the country. Those in California are listed as follows, together with the location of the headquarters for each:

District 1—Headquarters, Redding; Siskiyou, Modoc, Trinity, Shasta, Lassen, Tehama, Plumas, Glenn, Butte and Colusa Counties.

District 2—Headquarters, Sacramento; Sutter, Yuba, Sierra, Nevada, Yolo, Placer, Sacramento, Eldorado, Solano, and Amador Counties.

District 3—Headquarters, Stockton; San Joaquin, Calaveras, Stanislaus, Tuolumne, Merced and Mariposa Counties.

District 4—Headquarters, Fresno; Alpine, Mono, Inyo, Madera, Fresno, Kings, Tulare and Kern Counties.

District 5—Headquarters, San Bernardino; San Bernardino, Riverside and Imperial Counties.

District 6—Headquarters, Santa Rosa; Del Norte, Humboldt, Mendocino, Lake, Sonoma, Napa and Marin Counties.

District 7—Headquarters, San Francisco; San Francisco County.

District 8—Headquarters, Oakland; Contra Costa and Alameda Counties.

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District 10—Headquarters, San Luis Obispo; San Luis Obispo, Santa Barbara, Ventura, Monterey and San Benito Counties.

District 11—Headquarters, Los Angeles; Los Angeles County.

District 12—Headquarters, San Diego; Orange and San Diego Counties.

WORLD'S HARDEST GLASS

Glass that will bend like a sheet of steel is the latest product of the flat glass industry.

Its commercial possibilities are enormous, glass men say, although the industry is not quite ready to produce it in large volume.

New as today's newspaper and destined to be an important safety factor in many fields, it is interesting to delve briefly into the properties of the latest discovery of research men.

This type, described as the world's hardest glass, is heat treated in a new electric furnace designed especially for the strengthening process. The Libby-Owens-Ford Glass Company of Toledo is one of two companies with licenses permitting use of the process in the United States. The Toledo concern is installing two of the English furnaces in its plant at Ottawa, Ill.

The treatment consists of placing a sheet of ordinary plate glass in the furnace and heating it until it is plastic. Then a blast of cold air is suddenly directed against the glass, creating high strain, as the glass men say.

This process develops high compression on the outer wall of the glass, while the interior is under tension or a pressure in the opposite direction. This action gives the glass a strength from four to six times that of ordinary glass.

It will support tremendous weight, can be twisted or bent and will resist breakage to an unbelievable degree.

It is breakable, of course, when extraordinary force is brought to bear, but when it does break the glass crumbles into small fragments like rock candy. And the pieces do not cut or scratch like ordinary slivers of glass.

Wherever heat affects glass it may be used. In Libbey-Owens-Ford's own Charleston plant, for instance, where windows in some of the furnaces are exposed to terrific heat inside and only 70 degrees outside, replacements had to be made frequently until the new processed glass was developed.

Research engineers, to demonstrate some of its qualities, place a sheet of the treated glass on a cake of ice and then pour hot lead on the glass surface. Despite this extreme test, the glass does not crack.

Its possibilities in the automotive industry, in

building and construction activities and in other fields where glass is subjected to unusual daily rough usage, are interesting and endless. The housewife, for instance, could seen an advantage for glass table tops where a hot pot of coffee is so liable to cause damage to ordinary glass surfaces.

New processes in coloring glass are being developed — burned in simultaneously with the strengthening treatment — so that the increasing trend to use more glass in home construction may finally eliminate that humorous bromide—"people who live in glass houses shouldn't take baths."

WASHINGTON STATE CHAPTER

The May meeting of Washington State Chapter was held in the Pine Tree Tea Room, Third Avenue and Pine Street, Seattle, with President Robert F. McClelland in the chair. Arthur Herrman, Chapter secretary, was chosen as delegate to the national convention. B. Marcus Priteca, chairman of the Chapter committee on city ordinances, was complimented for obtaining the passage of an ordinance by the Seattle city council requiring an architect's seal on all building permits of $500 or more.

A motion picture illustrating the construction of the George Washington Memorial Bridge across the Hudson River was shown. It was announced that the June meeting would be held in the recently completed auditorium of the Puyallup High School.

NEW FLOOR-COVERING SERVICE

Headed by Joseph Shemanski, who has many years experience in the business, the Floorcraft Carpet Company, has established headquarters and display room at 149 New Montgomery Street, San Francisco.

Offering an efficient service for all types of floor covering, the firm will specialize in contracting installations for hotels, apartments, clubs, stores and homes. A complete line of carpets and rugs from the mills of Bigelow-Sanford Carpet Co. will be carried, including Axminsters, velvets, Wiltons, Broadlooms and the new Bigelow Lokweave. This latter development in rug construction allows for greater expression of individual designs, shapes and color combinations.

SPOKANE SOCIETY OF ARCHITECTS

Harlan Thomas, director of architecture, University of Washington, Seattle; Nelson J. Morrison, member of the Washington state examining board, and George Gove, the latter two of Tacoma, were guests of the Spokane Society of Architects at a dinner Tuesday, May 7, at the Spokane Hotel. The trio made the trip to Washington State College and the University of Idaho on the following day to talk to students of architecture.

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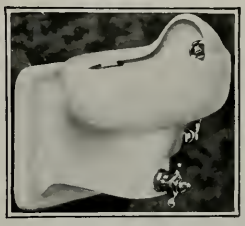

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G. G. BRIDGE

Within a few weeks the Golden Gate, San Francisco's far famed harbor entrance, will be closed for the first time in history.

Temporary cables to support the "cat-walks", upon which workers will scramble back and forth across the Golden Gate in the momentous task of weaving the huge supporting cables, will be placed in position.

Material for the "cat - walks", the same that was used in construction of the great George Washington Bridge at New York, is en route here by steamship and will arrive within the next few days.

Meanwhile, according to the progress report of Chief Engineer Joseph B. Strauss, the traveler truss, used in connection with the construction of the south tower of the big bridge, is being dismantled.

When this structure has been torn down the topmost cross strut will be erected. By that time riveters will have completed their work and the structure will be in readiness to turn over to the cable contractor.

All cable equipment has been erected on the San Francisco side of the Golden Gate, with the exception of that which will surmount the completed tower. On the Marin side men are working on a platform at the top of the 746-foot tower, a 10-ton derrick has been erected on the anchorage block and a huge derrick set up on the unloading dock, which was completed during the past week.

The high viaduct of the Presidio approach road has been finished to the point where steel superstructure is to be erected and the low viaduct is virtually complete insofar as its first stage is concerned.

In the eastern shops and mills 1250 tons of rolled material was shipped to the fabricating plants during the past week to be converted into units for the suspended structure of the bridge.

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STEEL HOUSES

One of the Berloy steel-frame houses being erected by the Berger Manufacturing Company, Canton, at Roosevelt and Jefferson Streets, just off the old Georgetown Road in Bethesda, Maryland, has been sold to Dr. Louis Cohen, 4701 Connecticut Avenue.

Dr. Cohen, a consulting engineer, has been associated with the scientific staff and is now a lecturer for the Bureau of Standards. He is also an author of scientific books and papers.

In purchasing the house, Dr. Cohen required additions to the original plans which are being incorporated, although the entire steel structure has been completed.

The 9x15 foot porch in the rear of the house is to be made into a 12x15 foot dining room, leaving the present dining room for a library. The garage will be extended three feet to allow room for a work bench and additional storage space, and the garage roof is to be railed in for a sun deck. A lavatory will be installed on the first floor under the stairs and a fire place in the living room.

Dr. Cohen already had plans prepared for a house of conventional design and construction and discarded them, after a complete inspection, in favor of the Berloy house.

BUILDER PASSES

Alan MacDonald, senior member of the firm of MacDonald & Kahn, Ltd., building contractors died suddenly from a heart attack June 7th, while visiting in Los Angeles.

Mr. MacDonald was born in Louisville, Ky., graduated from Cornell, and had lived in San Francisco for 27 years. He built some of the important structures in San Francisco, among them the Hotel Mark Hopkins, the Fox Theater and the Financial Center Building.

He was a director in the Six Companies, former manager of the Golden Gate Bridge District, a

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member of the Transbay Bridge Company, and belonged to the San Francisco Golf, the Bohemian and Olympic clubs.

He is survived by his widow, Mrs. Suzanne K. MacDonald; a son, Graeme MacDonald; a daughter, Miss Suzanne MacDonald; his father, Kenneth MacDonald, and two brothers, Graeme MacDonald of San Francisco and Kenneth MacDonald of Los Angeles. The family home was at 632 Camino del Mar, San Francisco.

NEW FURNACE

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NEUTRA AGAIN

In the national competition sponsored by the Educational Committee for Better Homes in America, three houses designed by Richard J. Neutra, architect of Los Angeles, received chief consideration out of about 3000 which were entered. The only gold medal award made by a unanimous vote of the jury went to the one-story modernistic copper bearing steel house designed by Mr. Neutra and erected for Prof. William Beard and

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his bride, of California Institute of Technology, at 1881 Meadowbrook Road, Altadena. Prof. Beard, author of a leading text book on government and technology, is a son of the world famous historian, Charles Beard.

This award was made in Group 1, Class A, the only other entry which was given final consideration, was the house designed by Mr. Neutra for Mr. Kobelick, at Atherton, California. First place was given to the Beard house as representing the best correlation between the architectural and functional features of a home. Honorable mention was given to the Kobelick house in this group and class.

First place in Group 1, Class B, houses one and a half stories in height, was given to the residence designed by Mr. Neutra for Mrs. Ernest Mosk on Hollyridge Drive, Los Angeles. No other award was furnace and affords particular adtries of two-story houses did not interest the jury sufficiently, according to their report, to justify an award.

The gold medal award in the first Better Homes in America competition held several years ago, went to a house at Santa Barbara, designed by Reginald Johnson of Los Angeles.

BUILDING IMPROVES

John D. Van Becker, financial editor of the Call-Bulletin, says Pacific Coast building is moving twice the rate of last year, but he doubts if we are on the eve of a building boom. And he is probably right. Quoting from the Call-Bulletin article we learn that—

"Improvement for the country began with the rise of rents at the beginning of 1934, and has steadily increased. Building for the first four months of the year was 21.6 per cent higher than in the same period in 1934.

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Pencil Points' thunder. Full credit was given (not in small type, as he says, but in large italics at the top of the page). Mr. Magonigle's comments convey the impression that after reading his own stuff in another periodical it sounded so condemnatory of the profession that he used our reprint for an excuse to soft pedal some of his fireworks.

H. ROY KELLEY of Los Angeles, a member of the General Electric jury in the New American House Competition, in a recent issue of *Southwest Builder and Contractor*, makes some pertinent comments on the competition. He says:

"I think it is very apparent that one of the most interesting results of the General Electric Architectural Competition is the very definite departure of the prize winning designs from precedent and tradition in plan and architectural character. To me this is significant and worthy of comment.

"It should not be assumed, nor is there any justification for any claim, that the jury was pro-modern. If anything, the reverse is true. There were only two strong-modernists on the jury and I think it will be generally agreed that in the early stages of judgment there was a very definite tendency to favor the designs of traditional character." According to Mr. Kelley, practically every design of traditional architectural character which justified studied consideration was held for last judgment, but when it came to the final study, analysis and comparison, the traditional designs were, to a large extent, discarded for designs of modern tendency.

"The fact that there was such a vast preponderance of modern design," continues Mr. Kelley, "is, to me, conclusive evidence of a definite changing trend in domestic architecture.

"Furthermore I am convinced that this is a very healthy sign. We have been copyists long enough—it is high time we began to use some creative thought."

REMEDIES of government loans alleviate but cannot cure. Our economic system operates on huge bonded indebtedness which has become a mere form of currency, but against the home owner it discriminates in the cruelty of its application. Of the ultimate outcome we are confusedly uncertain. Perhaps mortgagees and municipalities will eventually own most of the homes in some sort of feudalism and we shall become a nation of renters.

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Notes and Comments

THE building industry should act through the Construction League of the United States to preserve "the valuable elements" of the construction code. The American Institute of Architects has instructed its representatives in the Construction League to cooperate with the delegates representing the American Society of Civil Engineers, the Associated General Contractors of America, the Producers' Council, and other national organizations associated in the Construction League, in maintaining the gains made by the industry under the Code.

"The decision of the Supreme Court on the National Recovery Act has put a stop to the work undertaken under the Construction Code Authority," a resolution adopted by the Institute points out. "With the cessation of activity on the part of the Authority and its Divisional Code Authorities, the Construction League again becomes the sole existing agency through which the coordination of the construction industry can be effected.

"Through the leadership of the Construction League there may be preserved to the construction industry those valuable elements and results of the coordination of interdependent functional groups in the industry that it was the purpose of the code to advance.

"The Institute pledges its aid towards the extension, through the League, of such agencies as the League now have or may set up to forward their ends."

The Producers' Council, affiliated with the Institute, has taken a similar stand.

The Institute will request President Roosevelt and Harry L. Hopkins, Federal League Administrator, to maintain the present wage scale for draftsmen on relief projects. It was explained that the wages of draftsmen on relief projects would be reduced under the recently issued executive order setting a wage range of $19 to $94 a month under the new $4,000,000,000 emergency relief appropriation.

■ ■ ■

HEALTH RULES

Eat less; chew more.
Waste less; give more.
Ride less; walk more.
Go less; sleep more.
Talk less; listen more.
Worry less; work more.
Idle less; think more.
Preach less; practice more.
Clothe less; bathe more.
Scold less; laugh more. —Ex.

MAKE no little plans; they have no magic to stir men's blood and probably themselves will not be realized.

Make big plans; aim high in hope and work, remembering that a noble, logical diagram once recorded will never die, but long after we are gone will be a living thing, asserting itself with ever growing insistency. Remember that our sons and grandsons are going to do things that would stagger us.

Let your watchword be order and your beacon beauty.—Daniel H. Burnham.

■ ■ ■

WITH the appointment of an architectural commission to supervise the plans for the 1938 World's Fair on Yerba Buena Island shoals, the work of laying out the exposition will soon be under way. The selection of the men to guide the architectural destinies of the fair has met with general approval from both the public and the profession as all of the six appointees are considered eminently capable of handling the important duties assigned to them.

The members will serve without compensation. Their work doubtless will embrace commissions to other architects who will receive a fee for designing specific buildings. A large drafting force will eventually be centralized in one building for turning out a considerable part of the work.

The only complaint that has been heard with reference to the appointment of the commission is absence of an Oakland or Berkeley architect on the board. The commission is headed by Geo. W. Kelham, the other members being Arthur Brown, Jr., Timothy L. Pflueger of Miller & Pflueger, Lewis P. Hobart, Ernest Weihe of Bakewell & Weihe and William G. Merchant, associate of Bernard Maybeck.

■ ■ ■

NOT all ant-like insects now flying in swarms are winged termites, according to R. A. St. George of the Bureau of Entomology and Plant Quarantine, U. S. Department of Agriculture, who has identified hundreds of specimens sent in by home owners. Americans, Mr. St. George says, have become so apprehensive of termites that they suspect every tiny winged insect they see of belonging to one of the termite colonies that feed on woodwork in buildings, causing property losses running into millions annually in the United States. Although many of the insects under suspicion are members of the wood-mining family, some are ordinary winged ants that do not thrive on a wood diet.

It is no difficult matter to distinguish a winged termite from a winged ant. The difference is in waistlines and wings. Termites have very thick waists—practically no waistline at all. Their two pairs of transparent wings are nearly identical in size and shape—both rather slender and long, about twice the length of the insect's body. The winged ants often mistaken for termites have slim waists. In fact, they are nearly cut in two in the middle. And their wings do not match. The inner pair is much smaller than the outer set. The bodies of both insects are often of the same size—about 3/16 inch—and of the same color—black. Some ants, however, have reddish or brown bodies.

The winged termites that fly out in swarms in the spring and fall are not the destructive members of their highly specialized colonies. The tunnelers or workers are small creamy-white forms—often erroneously called white ants—that work their way up through any wood they can reach. They often get into wood that is not in contact with the ground by building an earthen passageway or shelter tube over brick, stone, or concrete foundations. As they stay inside the woodwork, never exposing themselves to the light, their presence usually is unsuspected until floors or timbers begin to yield for no apparent reason or until swarms of the fliers appear.

The fact that the ground-dwelling termites cannot live without easy access to moisture, usually in the soil, makes their control possible. Insulating from the ground all woodwork in new buildings is a sure preventive of termite trouble. Houses already infested can be saved from further weakening by cutting the termites off from their water supply, either in the ground or in some inside leak, by insulating with concrete, stone, brick, etc., or by the use of noncorrosive metal termite shields. These more radical changes are desirable as they are of permanent value.

■ ■ ■

JOHN BAUR, well known San Francisco architect and club man, designed the original Olympic Club Building, the improvements to which were described and illustrated in THE ARCHITECT AND ENGINEER for May. The alteration work has in no way changed the fine architectural lines which have made this building outstanding in appearance for years.

The Architect & ENGINEER

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DECORATIVE PANEL IN COCKTAIL ROOM, PLAZA HOTEL, SAN FRANCISCO, CALIFORNIA

G. Albert Lansburgh, Architect A. B. Heinsbergen, Decorator

(See *Frontispiece*)

A NEW note in mural decorations is sounded in the engraved panels by A. B. Heinsbergen in the cocktail room of the Plaza Hotel, San Francisco. Architects seeking a "foil" for their creative work will find the answer in this new technique with its seemingly unlimited possibilities.

One's first impression upon viewing the panels is of an exquisitely engraved metal plate with figures delicately outlined, "incised", the artist calls it, with some of the detail "raised up" or "water gilded". The blending of the panels with the architecture of the room has provoked much comment and admiration.

The Frontispiece in this issue is a reproduction of one of the Heinsbergen panels. The color scheme is silver, blue and touches of gold. To produce a likeness of the original it was necessary to run the color plates through the presses seven times with additional runs for the embossing. Seldom, if ever, has such an ambitious color plate experiment been undertaken by a Pacific Coast publication.

We give Mr. Heinsbergen's own description of this new technique:

"The surface is covered with a slow setting, smooth coat of plaster approximately one inch thick, or if possible, pre-cast in one unit, and while in a semi-plastic state, the design is drawn on in charcoal and 'carved', 'incised', or 'engraved' right into the plaster. The 'cuts' can be of various depths and widths, V shaped, round, semi-round, etc., depending on the importance of the lines in relation to the design. Some units can be raised up to various planes, depending again on the effect desired, the scale of the design and the distance from the eye. Certain parts may also be cut away to lower planes to get a further feeling of relief. After the 'cutting' or 'incising' and 'building up' has been done the entire panel is given several coats of whiting, well sand papered in between coats and washed with chamois skins and water to insure velvety smoothness. Paint or lacquer is then applied in the usual way, as well as metal of gold leaf, and colored to suit the problem. The beauty of the panels so executed is that they tie into the architecture as part of it, yet may be made to stand out or blend into the general scheme as may be desired.

"It has been argued that this new technique is not so new, that it is a combination of carving, plastering, engraving, scrafito, watergilding, sculpturing, etc., and such is indeed the case. However, the United States Patent Office granted the writer a patent to do this work as a new thing, for it is the manner and purpose for which it is used and the combination of the two in relation to mural decoration, that is new. When Columbus discovered America, the ocean and mainland, as well as the ships, were already in existence.

Mr. Heinsbergen's work is familiar to architects throughout the country, some of his more recent commissions being the Interstate Commerce and Labor Building in Washington, D.C., the State Capitol Library in Sacramento, the Los Angeles City Hall and the San Francisco Elks' and Olympic Clubs.

OVERPAGE: DECORATIVE PANEL IN COCKTAIL ROOM, PLAZA HOTEL, SAN FRANCISCO

G. ALBERT LANSBURGH, ARCHITECT
A. B. HEINSBERGEN, DECORATOR

The Architect & ENGINEER

July, 1935

Bars

by Frederick W. Jones

● *Architects Find New Field for Their Talents in the Design of Cocktail Lounges and Snack Buffets*

WITH the return of liquor legalization, architects have found a new field of endeavor in the planning of bar rooms and cocktail lounges. Hotels, restaurants and confectionery shops are spending many thousands of dollars in fitting up their places with attractive facilities for dispensing their stock of beverages. Proprietors vie with one another seeking novelties and original departures from the old time bar room set-ups.

CORNER OF BAR IN COCKTAIL ROOM
PLAZA HOTEL, SAN FRANCISCO
G. Albert Lansburgh, Architect

The new bar creations are indeed unique — some circular, some straight and others designed like a letter "S". They are made of various kinds of expensive hardwoods — walnut and mahogany predominating — with background of decorative mirrors and unique shelving for glasses and bottles. The bar rooms are gay with bright hued murals and the modern furnishings help to create an atmosphere of color and luxury.

In the following

Photo by Swadley

NEW ENTRANCE, LOBBY, PLAZA HOTEL, SAN FRANCISCO
G. ALBERT LANSBURGH, ARCHITECT

COCKTAIL ROOM, PLAZA HOTEL, SAN FRANCISCO
G. ALBERT LANSBURGH, ARCHITECT

REDWOOD GRILL, CLIFT HOTEL, SAN FRANCISCO
G. ALBERT LANSBURGH, ARCHITECT

pages will be found descriptive matter and illustrations of a few of the outstanding bar rooms and cocktail lounges more recently completed in San Francisco:

El Prado—Plaza Hotel

Two highly artistic and original new rooms and a very striking lobby have been completed at the Plaza Hotel, San Francisco, from plans by G. Albert Lansburgh, architect.

The Plaza improvements demonstrate what can be done by an architect with imagination; one possessed of an understanding for the proper handling of materials. Interesting in color, light and atmosphere, the element of exquisite taste is noticeable. Every nook and corner of the cocktail room has its point of interest and the use of contrasting materials in the decorative scheme is most effective.

An entire new lobby of modern design replaces the old one. The walls are built of terra cotta unit tile with decorative panels. The floor is a modernized pattern in Lincoln and Issaquah quarry tiles in browns and tans. Striking features of the lobby are the two free standing circular columns, faced with Hermosa tile glazed in a midnight blue and surmounted by silver bands and indirect lighting fixtures of satin finished aluminum. The tile was manufactured and furnished by Gladding McBean & Co.

Two very beautiful aluminum grilles surmount the two pairs of doors—one leading into the old lobby of the hotel, while the other enters directly into a vestibule leading to the bar or cocktail room.

The bar room is panelled in Brazilian rosewood, bordered with rare Carpathian elm. The bar itself, a rectangular horseshoe of approximately 80 feet in length, is also faced with matched rosewood veneer. The columns are encased with the same materials with inter panels of a technique not heretofore attempted. These are done on plaster, carved in bas relief, covered with aluminum leaf and colored and embossed in exquisite detail, conveying the impression of a modern mosaic. The mill and cabinet work in this room was by William Bateman.

The decorative panels and ceiling treatment, as well as the wood finishing, was done by the Heinsbergen Decorating Company. Mr. Heinsbergen, himself, is a modernist of national reputation.

The dining room is an adjunct of the cocktail room and is done in plaster with a modernized French feeling. One of the main features of this room is the window treatment in etched glass illuminated in a novel manner with artificial lights. Floor coverings are of rubber tile and carpet.

The lighting fixtures—another novelty in the room, are indirect and made of aluminum. When lighted they give the impression of opalescent glass.

The tables, chairs and settees are modernistic and lend a touch of color to the ensemble.

One of the novelties of the alterations is the ladies' powder room and convenience adjacent, done in pastel shades and a very original tiling scheme.

The lighting effects deserve special mention. Aside from the wall decorative fixtures, the sole illumination of the bar room is from a single dome which reflects the light thrown upon it from an aluminum urn placed upon a rosewood pedestal. The paneled walls receive their illumination from reflectors placed beneath the bar which in turn light the working stands of the bar attendants.

Redwood Grille at the Clift

This room was primarily conceived as a method of glorifying California through its

redwood industry. When it was suggested to the architect, G. Albert Lansburgh, to use redwood, he immediately realized that he would be obliged to design something more fundamental and sophisticated than is customary in the ordinary use of redwood.

His next problem was where to find a sufficient quantity of seasoned wood to serve his purpose, and after three months of scouting, finally discovered 10,000 feet in the yards of Van Arsdale-Harris which had been in their stacks some twelve to fourteen years.

Fortunately, Mr. Lansburgh had determined to use only curly redwood, and his conception of the room, while modern, is highly restrained and has produced not only a thoroughly artistic room, but one that has quite a Continental air. Its tonal values and atmospheric character reflect the architect's keen sense of color and creative ability.

Photo by Moulin

CIRCUS LOUNGE, FAIRMONT HOTEL, SAN FRANCISCO
Miller and Pflueger, Architects

DETAIL OF MURALS IN CIRCUS LOUNGE, FAIRMONT HOTEL, SAN FRANCISCO

The mural over the bar is the work of the Heinsbergen Decorating Company of Los Angeles.

CIRCUS LOUNGE AT THE FAIRMONT

Society has "something different in the circus lounge and snack buffet at the Fairmont Hotel. Timothy L.

Photo by Moulin

CIRCUS LOUNGE, FAIRMONT HOTEL, SAN FRANCISCO
Miller and Pflueger, Architects

Pflueger has added to his reputation as an architect of versatility by creating an original rendezvous where the elite of a great city and the guests of a great hotel may partake of things good to eat and drink.

In plan, taste and efficiency the new Fairmont lounge rivals anything along this line in the country. The walls are gay with vari-colored murals depicting men and beasts which have amused the American people for many years and brought fame and fortune to men like Barnum and Bailey, Forepaugh and the Ringling Bros. The murals are by Esther Bruton. They are cleverly done in gay colors and Mr. Pflueger's fine appreciation of good taste is reflected in the selection of the subjects and their arrangement so as not to clash or offend the eye. All of the murals are delicately drawn on a gold leaf background.

The ceilings, Venetian blinds and bar recess are of silver-leaf, the mirrors flesh colored, the furniture of African mahogany, upholstered with unfinished leather; the floor is covered with a rich green carpet of vivid design.

Photo by Moulin

COMMERCIAL CLUB BAR, SAN FRANCISCO
Will P. Day, Architect

Photo by Moulin

PIED PIPER ROOM, PALACE HOTEL, SAN FRANCISCO
Bakewell & Weihe, Architects for Alterations

Photo by Moulin

BAR, CAFE MARQUARD, SAN FRANCISCO

Photo by Moulin

MODERNISTIC BAR, ATHENS ATHLETIC CLUB, OAKLAND
John J. Donovan, Architect

COCKTAIL LOUNGE, MARK HOPKINS HOTEL, SAN FRANCISCO
Will P. Day, Architect

Other Bar Rooms Illustrated

It will be noted that the bar rooms illustrated range from the hotel, of which there is a preponderence in number, to the cafe, the private club and the night club. Two interesting club bars are the Athens Athletic in Oakland and Commercial Club in San Francisco. The Athens bar, designed by John J. Donovan, is outstanding for its dignified modern treatment. The Commercial Club bar was designed by W. P. Day and is in keeping with the Italian feeling of the club interior. The bar itself is of paneled walnut and beautiful in its simplicity. The mirrors are framed with delicately carved hardwood panels.

The Pied Piper room in the Palace Hotel was done over by Bakewell and Weihe. A Maxwell Parrish painting — The Pied Piper—which has been the treasured possession of the Palace for many years, is used as the key note to the decorations. The Cafe Marquard bar is designed along modern lines. All of the four bars just described were installed by the Mullen Manufacturing Company of San Francisco.

A.I.A. Honor Award

Photo by Roger Sturtevant

RESIDENCE OF NORMAN B. LIVERMORE, ROSS, CALIFORNIA
John Bakewell, Jr., and Ernest E. Weihe, Architects

Honor

by Linda C. Avenali

● *The Residence of Norman B. Livermore, Designed by Messrs. Bakewell & Weihe, and Awarded A.I.A. Certificate of Merit*

IN the residence designed by Bakewell & Weihe for Mr. and Mrs. Norman B. Livermore at Ross, California, the architects have created the ideal background for an American family of early Colonial and English inheritance and tradition. At the same time the house is in perfect accord with the dramatic and beautiful California landscape. The house itself is a modern expression of an old theme — the English country manor. The bright red common brick of its walls, the greenish blue slate of

Photo by Roger Sturtevant

GARDEN VIEW, RESIDENCE OF NORMAN B. LIVERMORE, ROSS, CALIFORNIA

JOHN BAKEWELL, JR. AND ERNEST E. WEIHE, ARCHITECTS

Photo by Roger Sturtevant

FRONT ELEVATION, RESIDENCE OF NORMAN B. LIVERMORE, ROSS, CALIFORNIA

John Bakewell, Jr., and Ernest E. Weihe, Architects

its roof, the brownish grey of its timbers, are all in harmony with, and keyed up to, the green lawns and trees and the gay colors of the gardening. There is something quite English in the way house and garden work together in producing the charm of a country place that fits into its natural surroundings so well as to actually become a part of the landscape.

This result is attained by producing the effect of the prototype rather than by attempting to reproduce a copy of the prototype itself. The architecture does not actually follow an historical style but does very strikingly illustrate many of the essential qualities of a very distinctive type of informal English architecture. The general effect of the English treatment of brickwork and rustic timber is preserved, but with a liberal interpretation not tied down by strict adherence to traditional precedents. In the same way the metal casements, while made of the commercial steel product of America of the 20th Century, are used to give much of the same quality and effect as the old casement window treatment so characteristic of this type of domestic architecture. The English them-

Photo by Roger Sturtevant

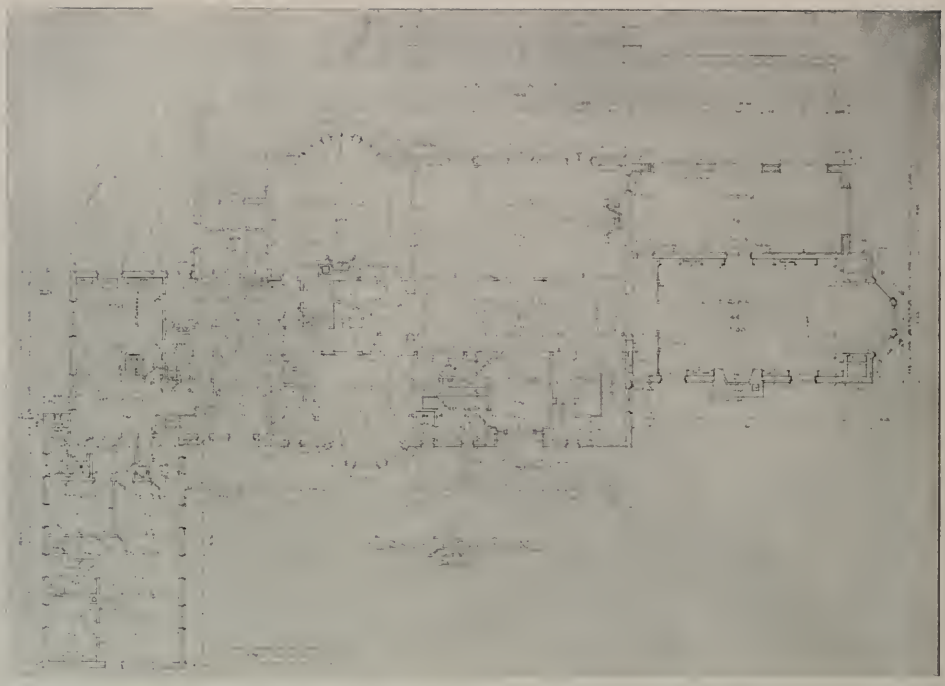
TERRACE, RESIDENCE OF NORMAN B. LIVERMORE, ROSS, CALIFORNIA

JOHN BAKEWELL, JR. AND ERNEST E. WEIHE, ARCHITECTS

Photo by Roger Sturtevant

LIBRARY, RESIDENCE OF NORMAN B. LIVERMORE. ROSS, CALIFORNIA

JOHN BAKEWELL, JR. AND ERNEST E. WEIHE, ARCHITECTS



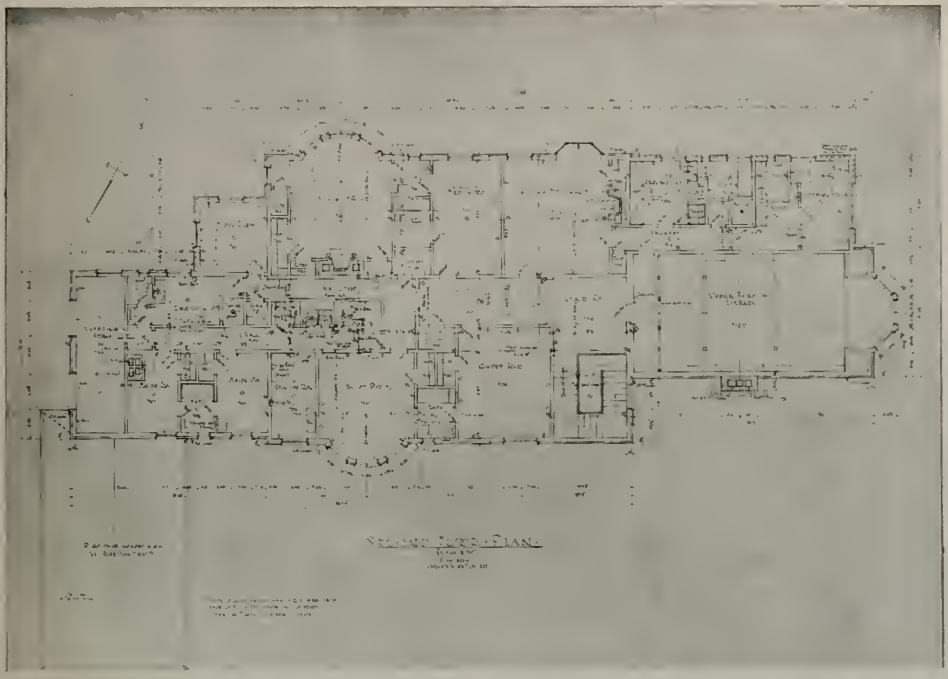
LIVING ROOM, RESIDENCE OF JOSEPH M. BRANSTEN, SAN FRANCISCO
John Bakewell, Jr., and Ernest E. Weihe, Architects

selves have used this method of giving a modern interpretation to their historical styles.

Mr. Livermore's house admirably illustrates how effects and impressions that we are accustomed to associate with certain historical styles may be obtained without strict adherence to the forms and details themselves.

The garden, designed by Mr. Dawson of Olmstead Brothers, is a beautiful and appropriate setting for this fine residence. A broad road winds upward from the gate through a thick wood to a leveled hilltop where the house itself dominates the entire surrounding country, across the valley to the bold outline of Mt. Tamalpais and far away to the skyscrapers of San Francisco.

The long windows of the drawing room and dining room open out onto a magnificent lawn terrace stretching away to the gardens beyond, and the cool green of the Venetian blinds make these a part of the house.



The interior furnishings, planned by Mrs. Livermore and the writer, are in keeping with the Georgian feeling of the architect's design.

The finely proportioned drawing room has delicate and simple moldings, dignified paneled doors and a Georgian fireplace. The furniture is beautiful 18th Century English, the hangings of old gold damask, the sofas and easy chairs are covered with pale periwinkle-blue chintz repeating in its design the soft yellow of the draperies and the aubergine tones of the rare Oriental rugs.

The dining room is curtained in old blue brocatelle with a classic design, the furniture is Sheraton and the chandelier and sidelights crystal.

A most interesting feature of the house is the huge library, a high vaulted room with woodwork and heavy beams of natural pine and a great bay window looking out towards Mr. Tamalpais across the tree tops of Ross Valley. The colors of the hangings,

STAIRWAY, RESIDENCE OF JOSEPH M. BRANSTEN, SAN FRANCISCO
John Bakewell, Jr., and Ernest E. Weihe, Architects

Photo by Roger Sturtevant

DINING ROOM, RESIDENCE OF NORMAN B. LIVERMORE, ROSS, CALIFORNIA

JOHN BAKEWELL, JR. AND ERNEST E. WEIHE, ARCHITECTS

Photo by Roger Sturtevant

RESIDENCE OF JOSEPH M. BRANSTEN, SAN FRANCISCO
JOHN BAKEWELL, JR. AND ERNEST E. WEIHE, ARCHITECTS

the comfortable chairs and divans are rust, soft dull blues and browns, and the walls above the book cases are hung with magnificent heads and skins, all rare trophies of Mr. Livermore's prowess as a big game hunter in Africa.

The entrance hall and staircase are dignified and imposing and the house is complete in every practical and livable detail. A large covered porch with arches and pillars of brick connects drawing room and library and serves as a delightful outdoor living room well sheltered from the wind. A charming little breakfast room all pale green lattice and gay chintz, bright with fruit and flowers, and iron furniture in somewhat the English regency style, leads from the dining room to a particularly large and well planned service wing. The family bed rooms and the guest rooms are models of comfort and charm in the Early American manner. Two large sleeping porches have been so cleverly designed that they in no way detract from the harmonious outline of the building.

The outstanding impression produced by the Livermore house is one of perfect balance and proportion and as a whole it is a delightful example of architects, landscape gardener and decorator working harmoniously together to express the gracious and hospitable personalities of the owners and to interpret their needs.

Fire

by H. E. Stevenson
in Buildings and Building Management

● *Some Serious Hazards of So-Called "Fire-Proof" Buildings—Watchman and Automatic Fire Alarm Urged*

THE average operator of a modern commercial building underestimates the gravity of the fire hazard because of two fallacies which prevail almost universally.

The first is: "Our building is fireproof, therefore it can't burn."

The second is: "It is the tenant who has the fire and bears the bulk of the loss—our loss is covered by insurance."

Both of these notions are so full of holes that we can see them collapse every day. Consequently, it behooves us to look into the problem because the truth is that we, as building managers, are far more deeply affected by the fire hazard than most of us realize.

We can get the most satisfactory approach to the subject by analyzing its two elements from two viewpoints: First, the practical fireman's, and, second, the practical insurance man's.

The practical fireman tells us, from long experience, that "no building is any more fireproof than its contents." So long as it is loaded with combustible fuel in the form of merchandise, office furniture and equipment, tons of paper in the form of records, decorations and trim and upholstery of fabric and wood—so long as it houses such great quantities of burnables as these, the unprotected fireproof building also houses the potentiality of a conflagration.

The U. S. Bureau of Standards has shown us in actual tests that an ordinary "light occupancy"—such as an office—in a strictly fire-resistant room of steel and concrete, can produce temperatures of around 1800 degrees Fahrenheit within twenty minutes after the outbreak of the most modest blaze. With a floor load of only 60 lbs. per square foot, that fire lasted over seven hours when unmolested.

Clearly, we can have very bad fires in the most modern, fire-resistant buildings when they are lacking in fire defences—not only can have them, but *do*. In a study of 48 serious outbreaks in such structures, the National Fire Protection Association recently found that the damage to contents alone exceeded $25,000 in 58 per cent of the cases. In six of those blazes the total damages exceeded one and three-quarter millions.

The firemen know what they are talking about when they say that "no building can be any more fireproof than its contents." And it behooves us to remember this when

EDITOR'S NOTE—The author is superintendent of the Medical Office Building, Los Angeles. While the article is addressed particularly to managers and owners of income producing buildings, architects and builders will find in it much informaton of value.

we attempt to talk away the fire hazard with that ancient bromide, "Our building is fireproof—it can't burn."

This, of course, may strike you as the tenant's problem rather than your own, but that is only one angle. Remember that a typical office occupancy generated nearly 1800 degrees of heat inside of twenty minutes. Add to that fact the further truth that concrete begins to dehydrate at around 500 degrees—that steel weakens at around 1000 degrees — that at 1700 degrees it won't support its own weight, not to mention the burden of a normal floor load. But put these figures together and you discover that your tenant isn't the only one who suffers from a fire in the premises he rents from you—if that blaze continues for any length of time — and it can continue for more than seven hours, you will recall—it will wreak havoc with your property as well as his. Smoke and water damage is bad enough. But when excessive heat begins to get in its work on structural parts, there's hell to pay for fair.

In one famous fireproof building blaze (Edison plant in New Jersey) the heat was so intense inside the structure that the concrete melted and dripped off the ceilings and down the columns into puddles on the floor. In the well-known Burlington Building fire in Chicago—entirely an office occupancy, by the way — supporting columns were so weakened by the heat that they buckled and let some of the ceilings down so close to the floor that men couldn't stand erect in those rooms.

Insurance Underwriter's Viewpoint

We are correct—as far as we go—in believing that a modern, fire-retardant structure won't actually burn down in the strict sense of the term. But a good many of them *fall down* under the punishment they receive from an uncontrolled fire — and a great many more have to be pulled down after the blaze has been extinguished because grievous structural weaknesses, induced by excessive heat, leave them unsafe.

Naturally, the average building operator counters with the argument: "Well, that's what I carry fire insurance for." And this brings us to the second phase of the complete story—the viewpoint of the insurance underwriter which most of us lack.

This is best expressed by his contention that every business is made up of two elements of equal importance: the tangible and the so-called intangible factors. In our field, the tangibles are the building and its service equipment — elevators, heating plant, plumbing, etc., etc. This is the factor which suffers immediately from the ravages of fire. It is also the factor which is most apt to be protected by insurance coverage and most readily replaced by means of that protection.

The intangible elements, however, are equally important to the successful operation of a building. In a loose way we might sum them all up as Good Will. Or, if you prefer, we can call it just plain income: that is, the revenue from a tenant paying a reasonable rental for his premises.

Obviously, this intangible factor is also destroyed by a fire which renders a property untenantable. And, sadly enough, this extremely vital side of the business is least often safeguarded by insurance even in those respects where partial coverage is possible.

What I am driving at is that a fire in your building will subject you to some very important losses that are probably not insured—and to some others, equally vital, which cannot be insured.

In its most extreme form, for example, here is a modest, six-story building which enjoyed a rental revenue of $12,000 a year. Just five years ago a cellar fire got out of hand and gutted the building, with an esti-

mated tangible loss of about $100,000, some 80 per cent of which was recovered from the insurance companies.

On this basis, the actual tangible loss from that fire amounts to $20,000. But that isn't the whole story. Ever since that blaze the building has been idle. So if you multiply $12,000 a year by five years, you will see that the unforeseen, intangible cost of that fire to date amounts to $60,000 and the end is not yet in sight.

Even granting that you don't fare so badly when your fire comes, the fact remains that the outbreak is going to leave you holding the bag as well as the tenant. Damage from fire, smoke or water is a universally accepted reason for voiding a lease. And you know without being told that any reason for voiding a lease is simply a powerful argument for a reduced rental. I promise you, therefore, that no matter how well insured you may be or how nominal the physical destruction, a fire in your building is going to cost you money in reduced revenue for many, many months after the smoke has blown away.

What actually happens in nine cases out of ten, of course, is that the tenant who had the fire moves out forthwith for either of two reasons. In the first place, if his uninsured intangible losses are too great—curtailed income, lost accounts, continuing fixed charges which go right on despite the suspension of revenues—if these prove too much of a burden, the tenant simply folds up and goes out of business. We see that from the brutal fact that of every 100 establishments which have a fire, 43 *never resume operation again* and none of the remainder come through the ordeal without serious credit punishment.

On the other hand, if your tenant happens to be one of the fortunate 57 who survive, his immediate concern is to get going again. Hence he naturally sets up shop in some other location which is ready to receive him. And I have heard it rumored that in practically every city there *are* buildings with vacancies these days.

In any event, you are left holding the bag on account of a fire which you thought was your late tenant's worry. And from those below him who suffered water damage, as from those above who were damaged by smoke, you hear that grim and sickening sound which means: "We want a new lease."

To be sure, if the fire proves to be a serious one involving the whole structure—and we have seen how easy that is even in a fire-resistant building—then you may well join the fatal 43 yourself. Your fixed obligations, too, continue even though all of your revenue has been cut off. Your bank will be just as cold-blooded about satisfying their notes out of your insurance award even before you can start to rebuild. And you may discover, to your sorrow, that your so-called intangible losses mount so high that your corporation will join the other unfortunates who are bankrupt by the destruction of that phase of their business which they had overlooked.

The two basic facts which must be borne in mind, then, are, first, the fireman's message that "no building is any more fireproof than its contents;" and secondly, the insurance underwriter's warning that 43 out of every 100 fire victims are wrecked by intangible losses which were not or could not be safeguarded by insurance.

If this dual thought leaves you a bit uneasy, the next question is, "What can be done about it?"

Automatic Fire Alarms Needed

And since we have stuck with our professional fire fighters and underwriters this far, we might as well string along the rest of the way with them and get their remedy. That remedy, unanimously agreed upon in both quarters is modern automatic control.

We learned from both of these authori-

ties that the reason for nine out of ten bad fires is nothing other than belated discovery.

The outbreak starts unnoticed. It gets under headway unmolested. It is discovered, purely by luck, when some chance passerby happening along that way notices the ugly red glow in the windows. By the time the firemen arrive, the thing is going great guns and the heat is so intense that they're lucky if they can stay on the same side of the street with it, to say nothing of getting inside where they can work on the blaze with even a slim chance for success. That spells not only serious damage from the flames and heat, but also excessive destruction from water and smoke. For when firemen are compelled to work on a blaze from outside the building, their only possible recourse is to deluge the premises with a young Niagara in the hope that some of that water will reach the burning fuel.

The remedy for this contingency is simple: Don't rely on chance for the discovery of your fire—eliminate *luck* entirely by the application of modern electrical and mechanical means which will detect the outbreak in its incipiency and summon trained aid at a stage of the game when it can accomplish the maximum results with the minimum of effort.

As far as we are concerned, this automatic control falls into three classifications which I shall list in the order of their importance to the typical building management:

1. Central station automatic sprinkler supervision.
2. Outside supervision of the night watchmen.
3. Central station fire detection devices.

The first is important because of the widespread use of sprinklers—and because it is obvious that the only good sprinkler is one which operates in the emergency. This is no aspersion on sprinkler installations. The fact remains that when sprinklers fail, the cause is inevitably some previous human failure. Somebody closed a gate valve and forgot to open it again—water was permitted to get low in the tanks —water in pipes or tanks froze — air or water pressure dropped below normal unnoticed — or for some other reason the sprinkler was left impotent in the crisis by some stupid bit of human negligence.

This ever-present threat can not be met by inside supervision because the responsible official—building superintendent or engineer — is also saddled with a score of other duties, all of which are more urgent to him than the inspection of a device which is rarely used. Consequently, the adequate solution is to entrust this supervision and maintenance to an outside agency which. in the first place, has no other diverting responsibilities, and secondly, can perform the service automatically as well as manually.

By that I mean the typical central station which is electrically connected to every vital element of your sprinklers with the result that any impediment to service reports itself automatically to that station in the form of a trouble signal which results in an immediate investigation and corrective action.

By the same token, any flow of water causes an automatic alarm which is not only answered by the agency but is also automatically transmitted direct to fire headquarters for their immediate attention. If the flow has been caused by fire, trained men are there within two minutes to take whatever further action may be necessary —usually this entails mopping up, shutting off the water, replacing the sprinkler head, and putting the system back into service.

If on the other hand, the flow has been caused by a leak, a broken head, a frozen pipe, or what not, the same trained aid is there to do whatever may be indicated by

the situation. The savings in prevented water damage alone from such quick action require no elaboration.

The second possibility is the outside supervision of night watchmen. For, like sprinklers, the only good watchman is one who is on watch. By means of periodic signals to an outside central office, the performance of these night guards is checked from hour to hour. Any delay in the transmission of a signal results in an immediate investigation and in emergencies this is conducted by armed forces prepared to meet any situation. This, to be sure, is considerably more than just fire protection—it is burglary and accident protection as well. But the fact remains that these so-called "compulsory tour systems" for watchmen prove to be excellent expedients for fire control.

Added to the fact that the watchman is actually watching, another reason this service has proved so valuable is that such systems include manual fire alarm stations distributed throughout a building. When the watchman or any other individual discovers a fire he simply turns to one of these conveniently located boxes and without loss of valuable time calls the fire department direct to the scene. There is no chance for delay or confusion. The alarm is given instantly and accurately and the firemen are summoned in those first precious minutes when their efforts are the most valuable.

From several thousand buildings using this service, nearly 1300 fire alarms were received by one protective agency last year. And with tangible property of some 14½ billion dollars involved, the damage from these fires amounted to a mere 2/100ths of 1 per cent of the value protected.

In other words, by merely keeping the watchman on watch, these concerns enjoyed a proven fire immunity of 99.98 per cent.

The moral, of course, is that the proper time to check on your watchman's movements is *tonight*, not tomorrow. In railroading they check on the movements of the 5:15 express at 5:15—not the next day. This same principle has its bearing on our field in the light of the graphic fact that for no less than 68 per cent of its existence, the average commercial structure is abandoned by its occupants by reason of nighttime, week-end and holiday shut downs.

This grows doubly significant when you realize that all of the fires last year which exceeded $10,000 in damages, *seventy-three per cent* broke out at night.

These facts also emphasize the value of our third remedy: automatic fire detection devices. Supplementing the watchman — who, after all, can only be in one place at a time—even supplanting him with the approval of the insurance interests in many cases — central station fire detection systems provide the finest answer to the firemen's maxim: "the first five minutes at a blaze are worth the next five hours."

The most universally used device in this field is the so-called pneumatic "rate of temperature rise" system which operates faster than any other type yet perfected. The ceilings and room areas of a building are equipped with continuous lengths of small copper tubing, ½ inch in diameter, which looks like ordinary uninsulated copper wire. The first symptom of a dangerous fire condition is heat—and when this rising heat reaches the tubing, the expansion of air inside instantly actuates the alarm mechanism and results in a fire signal to the central station which automatically transmits the alarm to the fire department.

The first virtue of this device is that it is motivated by any sudden and abnormal jump in temperature: say, 20 degrees within a minute regardless of the normal temperature of the room. This means that it

(Please turn to Page 51)

A PLEASING DESIGN WITH THE SPANISH FEELING DOMINANT

Offices

● *District Headquarters of California State Division of Highways at Marysville, Stockton and San Diego*

THREE interesting headquarters buildings for the California State Highway Department have been designed by the Division of Architecture, Sacramento, for San Diego, Marysville and Stockton. The buildings serve as office and equipment headquarters of the state highway maintenance crews in the districts in which they are located. The early California style of architecture is reflected in all three buildings, a style suitable to the traditions and climate of the Golden State.

Both the Stockton and Marysville building are completed and in use. The San Diego structure is under construction and will soon be ready for occupancy. It is located at the corner of Harbor and Ash Streets, facing the site of the proposed new Civic Center Group and having, as well, a view towards the water front. The lot is 125 feet wide by 200 feet long.

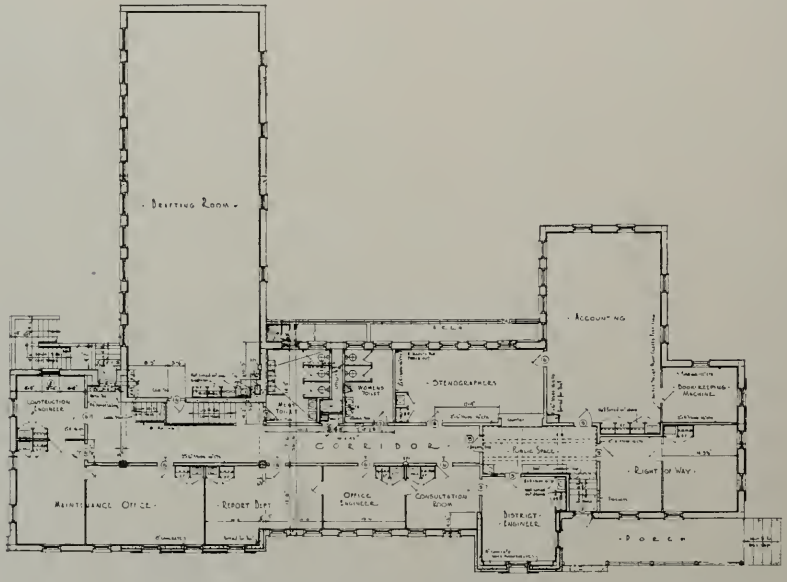
The style of architecture of the building was chosen with the idea of harmonizing with the projected municipal development.

DISTRICT OFFICE BUILDING FOR THE STATE HIGHWAY DEPARTMENT, SAN DIEGO, CALIFORNIA

Plans by Division of Architecture, Sacramento

Courtesy California Highways and Public Works

DISTRICT HEADQUARTERS, DEPARTMENT OF HIGHWAYS, MARYSVILLE,
Plans by Division of Architecture, State of California



PLAN, DISTRICT HEADQUARTERS, CALIFORNIA STATE DEPARTMENT OF HIGHWAYS, MARYSVILLE

DISTRICT HEADQUARTERS, DEPARTMENT OF HIGHWAYS, STOCKTON
Sketch by Division of Architecture, State of California

In the main the structure is one-story in height, accented at the corner by a tower which also acts as an entrance feature.

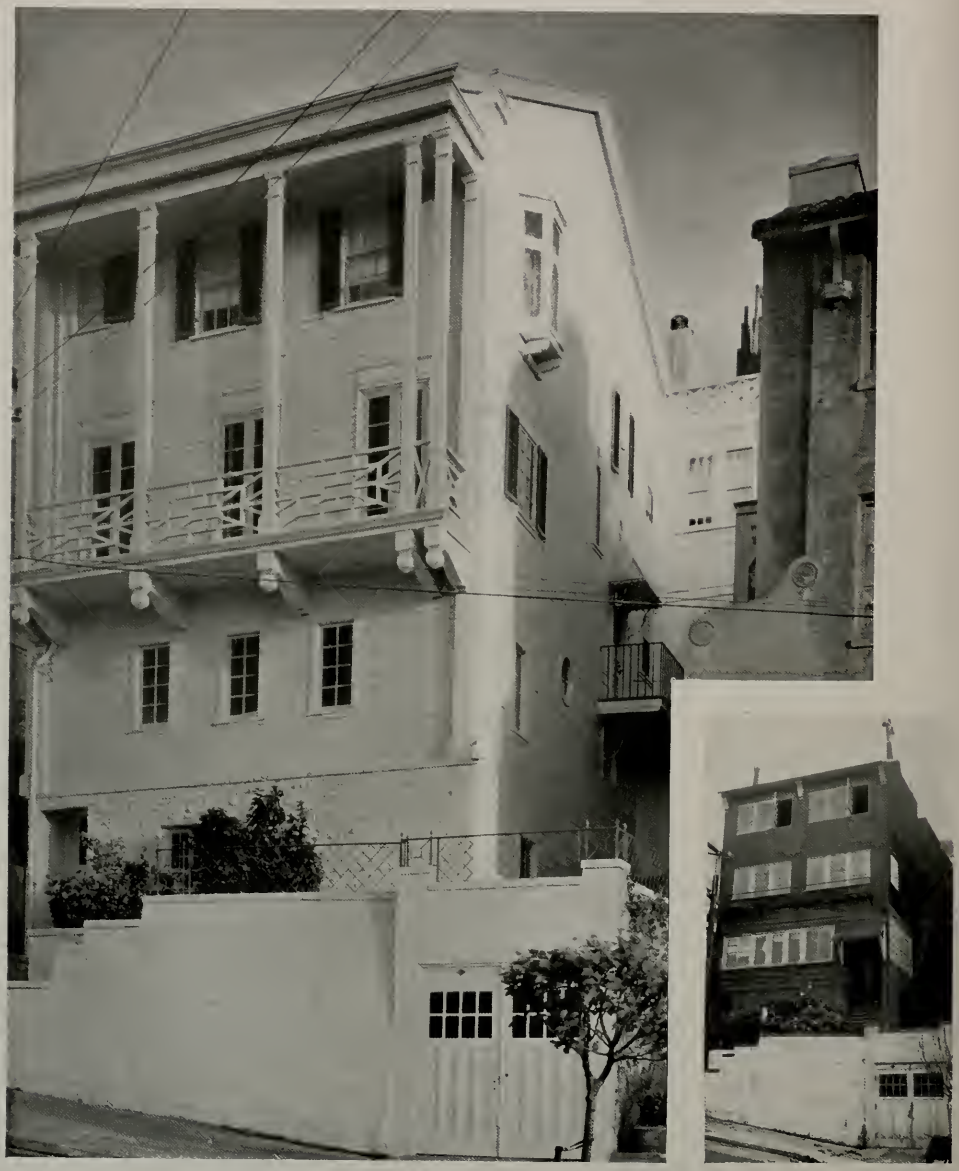
The building is of Class "C" construction with exterior walls of concrete while the interior partitions and roof framing are of wood.

The floor plan is roughly "U" shaped being 150 feet long and 116 feet wide. On the ground are nine offices, a public waiting room, blue print room, accounting room, vault and a large drafting room. The second floor of the tower is used as a conference room and overflow drafting room. In the basement are a laboratory, store room and heater room.

The Stockton building has eleven office rooms in addition to a public lobby, information room, stock room and basement.

The Marysville headquarters provides accommodations for 12 offices, a drafting and blue print room, waiting room, laboratory and large basement storage space. The building cost the state approximately $60,000. The Marysville City School Board donated the lot.

DISTRICT HEADQUARTERS, CALIFORNIA STATE HIGHWAYS, STOCKTON
Plans by Division of Architecture, State of California



REMODELED RESIDENCE ON HYDE STREET, SAN FRANCISCO
(Inset shows house before alterations)
FREDERICK H. REIMERS, ARCHITECT

Unity

● *A.I.A. Convention Adopts By-Laws for State Association Membership*

THE American Institute of Architects, at its recent Milwaukee Convention, adopted a set of by-laws which provide for State Association membership in the Institute, thus creating a closer workable basis for the two organizations. Every State Association member is expected to support the Institute and its activities.

The following organizations were represented at the Milwaukee meeting: State Association of California Architects, Illinois Society of Architects, Michigan Society of Architects, Minnesota Association of Architects, Council of Registered Architects of the State of New York, Architects Society of Ohio, State Association of Wisconsin Architects and architects from the State of Massachusetts. Amendments were offered to the existing by-laws, approved by the board of directors of the Institute, presented to the convention and carried without a dissenting vote. The Chapter on by-laws for State Organizations Members of the Institute as adopted by the convention, are as follows:

ARTICLE 1. *The State Organizations*

SECTION 1. *Organization.* (a) Composition and Purposes. Any state-wide incorporated or unincorporated organization of persons pursuing and/or qualified for the practice of the profession of architecture is a State Organization within the meaning of these By-Laws. Such State Organization must be a non-profit membership organization created to promote the aesthetic, scientific and practical efficiency of the profession, and to make the profession of ever-increasing service to society.

(b) Creation. To accomplish these purposes, a State Organization should be established in every state where such an organization does not exist.

SECTION 2. *Governments.* (a) Each State Organization shall be a self-governing body, which shall be, except as limited by the laws of the respective states, the judge of the terms and manner of its creation, of any qualifications required by it for membership therein, of any classes or privileges of membership granted by it, and of its relations with Chapters of the Institute within the respective states.

ARTICLE 2. *Participation in Institute Affairs*

SECTION 1. *Memberships.* (Substitute for present Section 1). (a) Qualifications. Any state organization may become a member of The Institute by furnishing The Board with evidence of the approval of its application for such membership by a majority of The Institute members in good standing in said state and upon satisfying The Board

first, of its compliance with Article I of this Chapter IV;

second, (that, in states where there is a registration or licensing law for architects, every registered or licensed architect resident in the state is eligible for membership and, in states where there is no such law, every qualified practicing architect is eligible for such membership, except that a State Association Member may exclude architects who are not practicing professionally);

third, that every architectural draughtsman resident within its state is eligible for membership in or for association or affiliation with the state organization, as it shall elect;

fourth, that within such time as is mutually agreed by The Institute and a State Association Member, such Member shall organize the said draughtsmen into local clubs and shall admit said draughtsmen or each such local organization thereof, as said State Association Member shall elect, as an associate or affiliate member of said Association and entitled to vote at meetings thereof, in such manner and extent as the State Association Member shall elect.

(b) A member or affiliate of a State Association Member, who is not a member of The Institute or of The Body, shall not print or otherwise use or cause or permit to be printed or otherwise used, the seal, insignia or name of the Institute or the abbreviations, initials or titles thereof in connection with any occupation, profession, business, trade, craft or otherwise, nor shall any such member who is not a member of The Institute vote on any question or division concerning Institute affairs.

(c) *By-Laws Title.* In these By-Laws a State Organization that is a member of the Institute is called a State Association Member.

(d) *Representation.* Each State Association Member in good standing in the Institute is entitled to be represented at meetings of the Institute by one or more voting delegates, one of whom must be a member of the Institute in good standing.

SECTION 2. *Affiliations.* Deleted.

SECTION 3. *Obligations.* (a) Every State Association Member shall support the Institute and its activities, and shall not directly or indirectly nullify or subvert the general purposes of the Institute.

SECTION 4. *Termination of Participation.* (a) Not later than six months before the end of any fiscal year of The Institute either The Institute or any State Association Member not in default for fees to The Institute, may notify the other of its intention to terminate its membership in or affiliation with The Institute, as the case may be, and upon the giving of such notice and the expiration of such fiscal year, such relationship shall terminate.

ARTICLE 3. *Fees*

SECTION 1. *Admission Fees.* (a) Each State Organization shall pay an admission fee of twenty-five dollars to The Institute upon its affiliation with or admission to The Institute.

SECTION 2. *Annual Fees.* (Substituted for present Section 2). (a) Each State Association Member shall pay an annual fee based on the number of its paying members on January 1st of that year exclusive of those who are individually members of the Institute as follows:

25 members or less	$ 25
25 to 50	50
50 to 100	75
100 to 200	125
200 to 300	175
300 to 400	225
400 to 500	275
500 to 600	325
etc., etc.	

SECTION 3. *Payments.* (a) Said admission fees and said annual fees shall be due and payable at the times and under the conditions prescribed therefore in Article 1 of Chapter X of these By-Laws, and each State Association Member shall be subject to the penalties for non-payment thereof prescribed in said Article.

ARTICLE 4. *Representation at Meetings of the Institute.*

SECTION 1. *Delegates.* (a) Determination of Number. The number of delegates that each State Association Member shall be entitled to have represent it at any meeting of The Institute during the then calendar year shall depend upon the number of voting members in the State Association Member on January 1 of each year, and shall be fixed by The Secretary of the Institute from the reports of the State Association Member for the prior year duly filed in his office. The said Secretary shall give due notice thereof to each such State Association Member as soon as possible after January 1, but not later than March 1 of each year.

(b) Number of Delegates. The total number of delegates to which the State Association Members will be entitled at any meeting of the Institute shall not exceed one hundred delegates. Until such maximum number is reached, every State Association Member in good standing in The Institute shall be entitled to be represented by one delegate at any meeting of The Institute; every such State Association Member having more than three hundred and not more than five hundred voting members, shall be entitled to two delegates, and every such State Association Member having more than five hundred voting members shall be entitled to three delegates, which shall be

the maximum number of delegates to which any State Association Member shall be entitled.

(c) Accrediting. The delegates and their voting power must be accredited to the meetings of The Institute in the manner prescribed in Article 4 of Chapter VI of these By-Laws.

ARTICLE 5. *Voting at Meetings of the Institute.*

SECTION 1. *Voting by State Association Members.* (a) Voting Power. A State Association Member in good standing in The Institute shall be entitled to vote on any question or division at any meeting of The Institute except on one relating to the property of The Institute or its chapters.

(b) Number of Votes. The number of votes that each State Association Member shall be entitled to cast at any meeting of The Institute during the then calendar year shall depend upon the number of voting members in the State Association Member on January 1 of each year and shall be equal to the number of delegates to which it is entitled at the meeting, as fixed by the Secretary of the Institute from the report of the State Association Member for the prior year duly filed in his office.

(c) Casting Votes. The vote or votes of a State Association Member at a meeting of The Institute must be cast as a unit and not otherwise. The procedure of determining the unit vote of any State Association Member shall rest with that State Association Member, and such vote must be cast by a delegate of the State Association Member who is an active member of the Institute in good standing and has been duly authorized by the State Association Member to cast the vote.

SECTION 2. *Privileges of Non-Voting Delegates.* (a) Delegates of a State Association Member who do not cast its vote or votes need not be active members of the Institute and shall be entitled to be admitted to any meeting of The Institute and may exercise all the privileges of the voting delegates thereat, except that they shall not vote.

ARTICLE 6. *Interests, Rights and Privileges.*

SECTION 1. *Property Interests.* (a) No State Organization shall have any title to or interest in any property of The Institute and it shall not be liable for any debt or other pecuniary obligation of The Institute, nor shall The Institute have any title to or interest in the property of any State Organization unless The Institute and the State Organization shall otherwise agree in writing, nor shall The Institute be liable for any debt or other pecuniary obligation of any State Organization. The Institute and any State Organization may act as agent or otherwise, one for the other, for the purpose of collecting and forwarding dues or acting as custodian of funds or otherwise if they duly execute a written agreement to that effect.

SECTION 2. *Rights in the Name of the Institute.* (a) A State Association Member, in good standing in The Institute, shall be entitled to and may exercise all the rights to and privileges in certain intangible property of The Institute that are conferred on it by these By-Laws and/or that The Board shall specifically grant to it from time to time. Every State Association Member may use the words "State Association Member, The American Institute of Architects," but shall not use any abbreviation or part thereof in connection with its own name, nor shall any of its members, associates or affiliates use such words or any abbreviation or part thereof, nor shall any of its members, associates, or affiliates print or otherwise use or cause or permit to be printed or otherwise used any other title or phrase or any initials, seal and/or insignia denoting membership or otherwise in The American Institute of Architects, in any manner or for any purpose whatever, or to publish or otherwise declare himself a member of The American Institute of Architects unless he shall be an active member of the Institute.

SECTION 3. *Privileges.* (a) Every State Association Member in good standing in The Institute shall be entitled to three copies of each Bulletin, Proceedings and Annuary of The Institute and three copies of each thereof for each of its suborganizations. The said State Association Members may also acquire for their members such other documents and literature as The Institute shall cause to be published and/or distributed, at and for such terms as The Board shall fix from time to time.

Further recognition was given to the Unification of the architectural profession by the following resolution:

"RESOLVED: That the State Associations recommend to the Board of Directors, that in order to promote the interest of State Societies and to provide a clearing house for the affairs of the State Association Members of The American Institute of Architects, that hereafter the program for the conventions of the Institute shall set aside one day for a pre-convention meeting of State Associations."

SUMMARY OF THE SAN FRANCISCO TERMITE SURVEY

Up to and including July 5, 1935

613 inspections—not including utility poles

WOOD FRAME BUILDINGS:

Number of inspections		326
"	of Zootermopsis infestations	83
"	of Zootermopsis and beetle infestations	11
"	of Reticulitermes infestations	105
"	of Reticulitermes and beetle infestations	9
"	of Zootermopsis and Reticulitermes infestations	52
"	of Zootermopsis, Reticulitermes and Beetle infestations	4
"	infested by fungi only	15
"	infested by beetles only	1
"	of infestations on property but not in building	35
* "	of infestations species not identified	12
"	of properties and buildings with no infestation	15

CLASS "C" BUILDINGS:

Number of inspections		227
"	of Zootermopsis infestations	23
"	of Zootermopsis and beetle infestations	1
"	of Reticulitermes infestations	35
"	of Reticulitermes and beetle infestations	4
"	of Zootermopsis and Reticulitermes infestations	7
"	infested by beetles only	3
"	infested by fungi only	41
"	of properties and buildings with no infestation	107
"	of infestations on property but not in building	7
"	of Reticulitermes and fungi infestation	1
"	of Zootermopsis and fungi infestations	1
"	of Zootermopsis, beetle and fungi infestations	1
"	of beetle and fungi infestations	1

CLASS "A" BUILDINGS:

Number of inspections		19
"	of infestations on property but not in building	2
"	of Zootermopsis infestations	2
"	of Reticulitermes infestations	3
"	of properties and buildings with no infestation	12

CLASS "B" BUILDINGS:

Number of inspections		33
"	of Reticulitermes infestations	7
"	of Zootermopsis infestations	1
"	of properties and buildings with no infestation	21
"	infested by beetles only	3
"	infested by fungi only	1

UTILITY POLES:

Number of inspections		161
"	of Zootermopsis infestations	22
"	of Reticulitermes infestations	13
"	of poles infested with fungi only	2
"	of steel poles	6
"	of poles with no infestation	119

* During the first few days, at which time the project was being organized, inspections made did not clearly identify species of termites doing damage in twelve instances. The buildings were being demolished, and were removed before the re-checking had been completed.

Survey

by A. A. Brown

● *Furniture Factories in San Francisco Found Infested With Powder Post Beetles*

RESULTS of the San Francisco Termite Survey disclose that termites enter and do damage in all types of buildings to be found in the city. A detailed analysis of 528 buildings inspected, of which 303 were of wood frame construction, 183 of type "C", that is, masonry walls and wood frame, 26 were of type "B", that is, reinforced concrete buildings, and 16 were of Class "A" or fireproof structural steel frame buildings, discloses that, in the case of the wood frame buildings, only 14 of the 303 were free from infestation by wood-destroying organisms. In other words, more than 95 per cent of all wood frame structures are being damaged by these organisms. Of the 183 Class "C" buildings there were 68 free from infestation; of the Class "B" structures 12 of the 26 were uninfested, and of the Class "A" buildings 12 of the 16 inspected were free from any wood-destroying insects.

The location of damage in these various properties proves interesting:

SUMMARY OF TERMITE SURVEY SHOWING LOCATION OF DAMAGE

Number of buildings in which wood sills were damaged	183
Number of buildings in which posts and columns were damaged	129
Number of buildings in which joists were damaged	137
Number of buildings in which the underpinning was damaged	187
Number of buildings in which the flooring was damaged	152
Number of buildings in which the exterior walls were damaged	129
Number of buildings in which the interior walls were damaged	55
Number of buildings in which the sheathing was damaged	39
Number of buildings in which damage extended to the upper floors	42
Number of buildings in which stairs and porches were infested	160
Number of properties in which fences and posts were infested	188
Number of buildings inspected where wood or other cellulose - containing material was carelessly stored in the basement	171
Number of properties in which moisture was present in the basement	159

Much emphasis in recent years has been placed upon the necessity for designing structures to resist lateral forces such as exist at the time of a severe earthquake. Termites have seriously weakened vital structural members as indicated above.

Termites entered the Class "A", "B" and "C" buildings most frequently by one of the following means:

1—Wood spreader left in place at time concrete walls were poured.
2—Through construction joints in the concrete.
3—Through cracks in walls or concrete floors.
4—Through space left by steel tie-wires which had rusted.
5—Along water and sewer pipes and electric conduits where these had not been thoroughly embedded in the walls.
6—Through joints in brick walls.

Three furniture factories have thus far been inspected. In each case they were found to be infested with powder-post beetles. In one instance the beetles infested the building from the third to and including the eighth floor. Under the conditions prevailing in these factories, new lumber or new furniture would in all likelihood be infested by these insects at the mating season. The mating season for beetles in San Francisco has extended through the months of April, May, and June, and into the first days of July. After mating, these insects bore into the wood and lay their eggs which later develop to the larvae state, in which condition they do the most damage to wood.

Wooden elevator guides are in use in a number of Class "C" buildings. These guides extend into the elevator pits where conditions are favorable for the development of fungi. Subterranean termites enter many of these pits and have in some instances destroyed the lower part of the wooden guides.

Progress

by J. B. Lippincott

Engineering Contributions to the Development of California Described by Distinguished Speaker at Los Angeles Meeting

THERE have been two periods of rapid growth in California, the one following the discovery of gold in the mountains of the central and northern portions of the state in 1848, and the other following the completion of the Santa Fe Railroad System in Southern California in 1886 and 1887. This system has maintained the policy of aiding the development of its tributary territory rather than charging all the traffic would bear. It called the attention of the nation to the resources of Southern California and stimulated migration to it. In each instance the engineer was called upon to invent equipment and methods suited to the novel demands that arose to solve the local problems that presented themselves.

In Central California there is a magnificent natural harbor into which navigable streams flow, with a back country containing large supplies of timber, with enormous tributary agricultural areas and with the gold-producing Mother Lode in the background. Geographically the San Francisco bay region is strategically situated to command the commercial trade of the western portion of the United States. These resources, coupled with the courage and energy of its people, have resulted in a magnificent development.

The striking characteristic of Southern California is the growth that has occurred in the last fifty years with limited resources naturally available. There are no large rivers, no natural harbor, except San Diego, no forests, no great expanses of agricultural back country save unreclaimed deserts, no near-by large water power opportunities and no extended local market for manufactured commodities. Los Angeles is a city situated in a remote corner of an extensive desert area. The large oil deposits were not extensively developed until about 1902.

Southern California with these handicaps was peopled with a vigorous race which has provided the human energy from which its growth has resulted. This citizenship for both portions of the state has been gathered from all parts of this nation and consequently the achievements properly should be credited to these various sources from which it emigrated.

Paper read at the July meeting of the American Society of Civil Engineers at Los Angeles.

The development of the state has been based largely on the ability of its engineers, backed by the organized cooperation of its civic leaders. The following paper briefly summarizes some of the engineering accomplishments.

Early Mining Days

Gold was first discovered in the auriferous gravels in California. The mining process consisted of washing these deposits. It involved hydraulic rather than metallurgy. As many ordinary materials and types of equipment were not available there resulted numerous inventions and a remarkable group of engineers such as Hamilton Smith, Ross E. Brown, Bowie and others whose services were subsequently sought for throughout the world. They were men of independent thinking, and courage with that rare quality of leadership. They were of the "practical" type rather than men of technical training though a few came from the German universities. As the years passed and the deep veins of the Mother Lode were explored the technically trained mining engineers became prominent and maintained the eminence achieved by their predecessors. Representatives of this type are John Hays Hammond and Herbert Hoover. Otto von Geldern, one of the second generation of early California engineers, beautifully reviews the accomplishments of these pioneers of the profession in a series of articles in Western Construction News of 1929 and 1930. His description of them is a classic to which the writer is indebted.

Hydraulic mining required the storage of flood water, its conveyance in various types of conduits along mountain sides, across canyons and through pressure pipes to hydraulic giants which were used to tear down deposits of gravels.

Rock Fill Dams

One of the types of dams for the impounding of flood water adopted by the early mining engineers of California was a combination of crib work and rock fill with a plank face. James D. Schuyler lists 21 of these in his book on reservoirs. The English dam having a height of 131 feet, was built in 1856.

The Bowman is the outstanding early rock fill dam in California. It was built to a height of 75 feet in 1872 and raised to a height of 100 feet in 1875. It was designed and built by Hamilton Smith for the North Bloomfield Mining Company. This dam served continuously up to 1927 when it was rebuilt and its height increased to 165 feet by the Nevada Irrigation District. It is still a rock fill dam, all the rock in the original dam being used.

The Salt Springs dam of the Pacific Gas & Electric Company on the Mokelumne River represents the culmination of rock fill dam construction in California. It is 330 feet high and has a concrete face.

It has been demonstrated that rock fill dams should only be built of rock of the best quality for strength and endurance as with the higher types even with good rock, settlement occurs. The voids in the fill should be filled with smaller rock and spalls in the upstream portions of the structure.

Hydraulic Fill Dams

Small hydraulic fill dams were first built in the early days by hydaulic giants and sluicing. The first large scale application of this method was by A. Chabot for the construction of dams for the City of Oakland by a combination of rolled fill and sluicing. He built the Temescal dam 105 feet high for this city in 1868. J. M. Howells built a modern type of hydraulic dam at Tyler, Texas, in 1894. He subsequently came to California and constructed the La Mesa dam in San Diego County in 1895. This was followed by many others of this character as described in detail in James D.

Schuyler's book on reservoirs. H. N. Savage recently completed for the City of San Diego an hydraulic fill dam which is 240 feet in height above foundation and contains 2,702,000 yards, at El Capitan.

In the past they were a cheaper type of construction than the rolled fill earthen dam but the advances in modern equipment for moving earth have of late largely changed the relative costs. There are, however, localities where this type of construction is preferable.

Riveted Pipe

In the early portion of this hydraulic mining period when freight came around Cape Horn, construction materials were expensive. Some light pipe was necessary for siphons and penstocks for the hydraulic giants. The earliest pipe used to generate heads for hydraulicking the gold gravels was canvas with wooden nozzles. Riveted iron pipe with slip joints was a California development of these mining days. Its use began in 1853. It was also used for the conveyance of water and the driving of water wheels. The plates were shipped flat, were punched along their longitudinal edges for rivets, rolled into form by San Francisco mills and nested for shipment to the miners. The plates were riveted where the pipe was to be installed. It was put together with a slip joint which was called "stove-pipe joints". Even under pressures of from 400 to 500 feet head it was satisfactory. In some instances the flat plates were shipped to San Francisco from Scotland, were rolled, punched and nested at San Francisco and re-shipped to the mines of South Africa.

Herman Schussler further developed the riveted wrought iron pipe. As a young man he came to California and became the engineer of one of the predecessors of the Spring Valley Water Company, serving domestic water to San Francisco. He first used such pipe for the supply lines to San Francisco. In 1870 he designed and built the Cherokee 30" line, 14,000 feet long across a depression under a head of 887 feet. In 1872 with the cooperation of W. R. Eckart, Mechanical Engineer, he installed a siphon across the Washoe Valley for the Comstock Mines, the maximum head being 1720 feet.

Wood Stave Pipe

Wood stave pipe has also been important to California development, It is suitable for us here because of economy and the wealth of good timber for staves. D. C. Henny and Arthur L. Adams were prime movers in this work which meant much to other western states as well as California.

Impulse Water Wheels

Accompanying the manufacture of the riveted iron pipe was the impulse water wheel, called at that time the "hurdy gurdy". Crude impulse water wheels have been used in European countries for three hundred years. They were imported by the early California engineers in their mining operations. These wheels were at first built by the Argonauts between 1850 and 1860 of wooden planks fastened together. In the rim were coarse teeth like a circular saw. The open ends of the channels of the teeth were flanged, thereby forming pockets or cups in the rim of the wheel onto which water was projected from a nozzle. Buckets that reversed the jet were first used at the Guin mine in 1886.

Professor Hesse of the University of California designed the split bucket to be fastened to the perimeter of the wheel, the bucket having proper shape and spacing to efficiently utilize the energy from the nozzle. Prof. Hesse was a young scientist who escaped from Germany under the back seat of a coach during the German Revolution of 1848. He came to America, spent a short time at the Naval Observatory near Washington, and came across the plains on horse-

back. He was professor of mechanical engineering at the University of California practically from its birth to his death some years ago. Messrs. Pelton and Doble as the result of numerous tests improved the efficiency of the wheels which they manufactured in San Francisco.

Transportation

At the meeting of the American Society of Civil Engineers held in Sacramento in 1930 a monument was unveiled in the station grounds of the Southern Pacific Company at Sacramento, to the memory of Theodore Dehone Judah. It consists of a large granite boulder from the Sierras with appropriate inscriptions to the memory of this engineer. W. H. Kirkbride, chief engineer of the company, delivered an eloquent eulogy on this occasion, descriptive of Mr. Judah's work, stating "The story of the conception, promotion and construction of this railroad system eastward out of Sacramento, is a soul-stirring California romance second only to the discovery of gold and Mr. Judah represents the moving genius of the whole story". Mr. Judah, when a young man of but 28 years, came to California in 1854 as chief engineer of a small railroad from Sacramento to Folsom. He became intrigued with the idea of constructing a railroad eastward from Sacramento over the Sierra Nevada and was the prime mover in this enterprise. He acquired the confidence of Stanford, Huntington, Hopkins and Crocker who were at that time engaged in commercial pursuits in Sacramento. They financed the cost of the necessary surveys. Mr. Judah demonstrated the possibility of the construction of the line. This resulted in the organization of the Central Pacific Railroad of California in 1861. Judah was instrumental in the passage by Congress of the Pacific Railroad bill which was signed by President Lincoln in 1862. Unfortunately Mr. Judah in a trip across Panama in 1863 was stricken with fever and died at an age of 37. The construction of this line at the time it was built was one of unusual magnitude and daring. It connected California with the eastern portions of the United States by rail. This was an important national as well as local achievement. The work of Judah illustrates the energy and courage of the California pioneer engineer. The work of Judah should be an inspiration to young engineers.

In giving brief consideration to transportation the name of William Hood should not be omitted. He built the Southern Pacific system from Portland to New Orleans with its many ramifications and branches. Mr. Hood was instrumental in maintaining rainfall and temperature observations at the stations of this system as well as river gage height readings at railroad bridge crossings of most of the important rivers. These early records are especially valuable.

The climate of California with the dry months occurring during the summer growing season, makes irrigation necessary to agriculture. The Padres brought this art with them when they established their missions. Its theory is to supply the plant with water when it needs it and not to rely on the chance of rain. As the value of this form of agriculture became recognized the demand for greater hydraulic works has grown until the summer flow of practically every stream in the state has been diverted, except in the far northwest. More and larger reservoirs have been provided until now the State Engineer lists 584 dams within the commonwealth. This line of industry was overshadowed and delayed by the gold and silver excitement until about 1880 when its importance was recognized by the appointment of William Hammond Hall as State Engineer, with Grunsky,

Schuyler and Manson as assistants. Hall began the gaging of streams and the collection of information about underground water supplies in the south. After an interruption of this work from 1885 to 1892 it has been continued and expanded by the U. S. Geological Survey. Today 5,452,000 acres have been reclaimed by irrigation in California, practically all by private capital and local districts. This compares favorably with the total area of 2,025,508 acres reclaimed by the Bureau of Reclamation including Warren Act projects throughout the entire arid West. A description of these California projects is impossible in this brief paper. It is distinctly an accomplishment of the engineering profession. Some further reference will be made below to unusual features of irrigation in Southern California.

Flood Control in Central California

In the early days about 1,000,000 acres of land were subject to overflow from the Sacramento and San Joaquin Rivers and thereby made swamp lands. The United States gave these lands to the state under condition that they be reclaimed. This required hundreds of miles of levees. In this work the clamshell dredge was developed to a high degree of perfection to supersede the Chinese and wheelbarrows with which it was started.

In order to safely reclaim these lands, some means had to be devised to care for the larger floods. In 1893-1894 C. E. Grunsky and Marsden Manson planned a comprehensive by-pass system for this purpose. With some modifications it has been carried practically to completion.

[To be Concluded in the August Number]

FIRE-PROOF BUILDINGS

By H. E. Stevenson

[Concluded from Page 35]

is just as sensitive and operates as quickly in a refrigeration plant as in a boiler room.

Its second virtue is that it is not a local alarm but a central station system—meaning that the electrical equipment can not become inoperative for any cause without giving a prompt trouble signal—and that the entire system is under the constant supervision and care of trained men whose sole function is to assure its proper operation.

By such modern methods, then, do our experienced firemen and our experienced insurance men recommend that we combat the fire problem. They show us, most convincingly, that the best of buildings can be seriously damaged by fire so long as they house combustible contents. . .

. . . That the costly consequences of fire don't end with the destruction of physical property but *begin* with the destruction of irreplacable, intangible assets which ruin 43 per cent of our fire victims. . .

. . . That the reason for nine out of ten bad fires is belated discovery. . .

. . . And finally, that the threat of belated discovery can be adequately met only by substituting the surety of mechanical and electrical genius for the elusive and treacherous element of luck in fire detection.

That, in a nut shell, is why we should and how we can meet the fire hazard.

STATE HIGHWAY BRIDGE OVER EEL RIVER, NEAR GARBERVILLE, CALIFORNIA
First continuous steel girder bridge to be built on a curve in America; awarded prize for beauty in national competition

Beauty

by W. A. Douglass

● *Steel Girder Bridge over South Fork of Eel River in Humboldt County, California, Awarded Prize in National Contest*

WE are indebted to the "California Highways and Public Works" for the excellent pictures, shown on the opposite page, of the steel girder bridge over the south fork of the Eel River in Humboldt County. The structure is the first continuous girder bridge on a curve to be built in this country, so far as known, and was recently awarded honorable mention in a national competition conducted by the American Institute of Steel Construction for the most beautiful bridge in steel built in 1934.

The pictures indicate the type of structure chosen for this site. Four continuous steel girder spans were used—two 120 foot each and two 100 foot each — which together with the abutment spans make a total length of 555 feet. The north one-half of the bridge lies on a curve.

Similar designs have been worked out and built in Germany but due to complications involved, this type of structure has not been developed in the United States.

Since the steel girders are straight while the concrete deck slab is curved, the deck overhang beyond the girders is variable thus producing constantly changing conditions of loading and distribution throughout the entire length.

The effect of continuity or of continuous girder design is to carry stresses from one span to the next, in fact to several adjacent spans, reversing the stresses at each support. That is, a load tending to produce a sag in one span will tend to produce a raise or crown in the first span on either side and a lesser sag in the second spans, crown in third and so on thus producing "waves" decreasing in magnitude each way from the loaded span.

The extent and direction of the stresses developed in bridge members and joints have been fairly well developed for bridges on tangent. However, it can be readily seen that, with a bridge on a curve and the girders joined at an angle rather than a line, the effect of stresses carried through the joints may be quite different.

In addition to the "wave" effect mentioned above, a load on one span introduces an overturning moment in the girders of adjacent spans and because of the restraint a tortional or twisting stress is developed at the joints.

This is one phase of design on which very little has been written and no definite rules developed. For this reason individual credit is due Designing Engineer H. D. Stover and Designer A. B. Willett for the ingenuity displayed in developing a rational solution for this problem.

The principal advantages of this type of design are in the use of longer girder spans, some reduction in metal required and pleasing appearance. Further embellishments were added for appearance, such as the distinct form marks on piers and abutments, massive abutments and solid concrete rails.

The cost of bridge was about $110,000, or nearly $8.00 per square foot of roadway. The relatively high cost was due in a large measure to high (75 foot) piers required.

New Act

● *Amended Legislative Bill Creates State Contractors' Board and Provides for Classification of Business*

THE amended State Contractors' Act passed by both houses of the California Legislature at its last session, provides a new set-up in the operation of the Act. The administration is transferred from the State Director of Professional and Vocational Standards to a board of seven members, who, in turn, will name a registrar to serve as executive secretary, also a deputy registrar and a chief reviewing officer. All of the seven members of the board are to be active contractors who have been residents of the state for at least five years and who have had at least five years experience in the contracting business. The appointments are to be made by the governor. The members will serve without pay, receiving an allowance only for traveling expenses.

Contractors are classified by the bill as engineering contractors, building contractors and specialty contractors and the board is to consist of one engineering contractor and three each from the other two groups, the term of appointment to be for four years, except that first appointments are to be staggered to permit the naming of one building and one specialty contractor each year and an engineering contractor the fourth year.

Under such rules and regulations as it may adopt the board shall have power and authority to examine, classify and qualify applicants for contractors' licenses under provisions of the Act.

Contracting as defined in the bill does not include any work or operation on an undertaking or project the full contract price for which is less than $200; "provided, however, that the exception shall not apply in any case wherein the work of construction is only a part of larger or major operation, whether undertaken by the same or different contractor, or in which a division of the operation is made in contracts of amounts less than $200 for the purpose of evasion of this act, or otherwise."

TEXT OF THE BILL

An act to amend sections 1, 2, 3, 4, 6 and 9a of, and to add sections 3½ to "An act providing for the registration of contractors, and defining the term contractor; providing the method of obtaining licenses to engage in the business of contracting, and fixing the fees for such licenses; providing the method of suspension and cancellation of such licenses; and prescribing the punishment for violation of the provision of this act," approved June 13, 1929, as amended, relating to contractors.

The people of the State of California do enact as follows:

SECTION 1. Section 1 of the act cited in the title hereof is hereby amended to read as follows:

Section 1. It shall be unlawful for any person, firm, copartnership, corporation, association or other organization, or any combination of any thereof, to engage in the business or act in the capacity of a contractor within this State without having a license therefor as herein provided, unless such person, firm, copartnership, corporation, association or other organization, or any combination of any thereof is particularly exempted as provided in this act.

It shall be unlawful for any two or more persons, firms, copartnerships, corporations, associations, or other organizations, to each of whom has been issued a license to engage in the business or act in the capacity of a contractor within this State in accordance with the provisions of this

act, to jointly submit a bid or otherwise act in the capacity of a contractor as herein defined within this State without first having secured an additional license for acting in the capacity of such a joint venture or combination in the manner and in accordance with the provisions of this act as provided for an individual, firm or corporation.

EXEMPTIONS

SECTION 2. Section 2 of said act is hereby amended to read as follows:

Sec. 2. This act shall not apply to:

(a) An authorized representative or representatives of the United States government, the State of California, or any incorporated town, city, county, city and county, irrigation district, reclamation district or other municipal or political corporation or subdivision of this State;

(b) Any construction or operation incidental to the construction and repair of irrigation and drainage ditches of regularly constituted irrigation districts, reclamation districts, or to farming, dairying, agriculture, viticulture, horticulture, or stock or poultry raising, or clearing or other work upon land in rural districts for fire prevention purposes;

(c) Officers of a court, providing they are acting within the scope of their office;

(d) Public utilities operating under the regulation of the State Railroad Commission on construction work incidental to their own business; or any construction, repair or operation incidental to the discovering or producing of petroleum or gas, or the drilling, testing, abandoning, or other operation of any petroleum or gas well, when performed by an owner or lessee; or the drilling of water wells or any operations incidental thereto;

(e) Owners of property, building thereon dwellings intended for the use and occupancy of such owners and their families, and not intended for sale;

(f) Any work or operation connected with the sale or installation of any finished products, materials, or articles of merchandise, which although affixed to the building or structure by the use of hardware, liquid cement, or other substantial means is not actually fabricated into and does not become a permanent fixed part of the structure;

(g) Any construction, alteration, improvement or repair of personal property;

(h) Any construction, alteration, improvement or repair, carried on within the limits and boundaries of any site or reservation, the title of which rests in the Federal government.

DEFINITION OF CONTRACTOR

SEC. 3. Section 3 of said act is hereby amended to read as follows:

Sec. 3. A contractor within the meaning of this act is a person, firm, copartnership, corporation, association, or other organization, or any combination of any thereof, who in any capacity other than as the employee of another with wages as the sole compensation, undertakes or offers to undertake or purports to have the capacity to undertake or submits a bid to construct, alter, repair, add to, substract from, improve, move, wreck, or demolish any building, highway, road, railroad, excavation or other structure, projects, development, or improvement, or to do any part thereof, including the erection of scaffolding or other structures or works in connection therewith, including the eradication of or the processing against infestation by pests structurally injurious to building or structures; provided, that the term contractor, as used in this act, shall include subcontractor, but shall not include anyone who merely furnishes materials or supplies without fabricating the same into, or consuming the same in the performance of, the work of the contractor as herein defined.

CLASSIFICATION

SEC. 4. Section 3½ is hereby added to said act, to read as follows:

Sec. 3½ . The term "contracting business" shall be defined as embracing either of the following branches: General engineering contracting, general building contracting and specialty contracting.

(a) A "general engineering contractor" within the meaning of this act is a person, firm, copartnership, corporation, association or other organization, or any combination of any thereof, excepting State licensed architects or civil engineers acting solely in their professional capacity, as set forth in section 1 hereof, who in any capacity as his principal line of business as hereinafter defined, undertakes or offers to undertake or purports to have the capacity to undertake or submits a bid to construct, alter, repair, add to, subtract from, improve, wreck or demolish any structure or project in connection with fixed works for any or all of the following divisions or subjects: Irrigation, drainage, water power, water supply, flood control, inland waterways, harbors, municipal improvements, railroads, highways, tunnels, airports and airways, sewerage and bridges.

(b) A "general building contractor" within the meaning of this act is a person, firm, copartnership, corporation, association or other organization or any combination of any thereof, excepting State licensed architects, or civil engineers acting solely in their professional capacity, as set forth in section 1 hereof, who in any capacity as his principal line of business as hereinafter defined, undertakes or offers to undertake or purports to have the capacity to undertake or submits a bid to construct, alter, repair, add to, subtract from, improve, move, wreck, or demolish any structure built for the support, shelter and enclosure of persons, animals, chattels or movable property of any kind, requiring in its construction the use of more than two building trades or crafts, or to do or superintend the whole or any part thereof but shall not include anyone who merely furnishes materials or supplies, as defined in section 2 (f) of this act, without fabricating the same into, or consuming the same in the performance of the work of the general building contractor.

(c) A "specialty contractor" within the meaning of this act is a person, firm, copartnership, corporation, association or other organization, or any combination of any thereof, excepting State licensed architects or civil engineers acting solely in their professional capacity, as set forth in section 1 hereof, who in any capacity undertakes or offers to undertake or purports to have the capacity to undertake or submits a bid to perform a portion of construction work, including the eradication of or the processing against infestation by pests structurally injurious to building or structures, requiring special skill and not involving the use of more than two building trades or crafts.

(d) The terms "contractor" and "contracting business" as used in this act, shall not include any work or operation on one undertaking or project by contract or contracts the

aggregate contract price for which, for labor, materials, and all other items, is less than two hundred dollars, such work or operation being considered as of casual, minor, or inconsequential nature; provided, however, that the exception shall not apply in any case wherein the work of construction is only a part of a larger or major operation, whether undertaken by the same or different contractor, or in which a division of the operation is made in contracts of amounts less than two hundred dollars for the purpose of evasion of this act, or otherwise.

STATE LICENSE BOARD

SEC. 5. Section 4 of said act is hereby amended to read as follows:

Sec. 4. (a) There is hereby created a Contractors' State License Board, hereinafter called and referred to as the board. Except as provided in Article IIn of Chapter III of Title I of Part III of the Political Code, the board shall succeed to and take over all of the functions and duties of the Director of the Department of Professional and Vocational Standards as they relate to the administration of this act. The Contractors' License Bureau as now established in said department shall be continued in full force and effect, and pending organization of the Contractors' State License Board shall remain under the direction of the Director of the Department of Professional and Vocational Standards, as provided in the act approved June 13, 1929, as amended.

The director of the department shall designate a sum not to exceed ten per cent of the total income of the Contractors' License Bureau for each fiscal year to be transferred to the professional and vocational standards fund as the bureau's share of the cost of administration of the Department of Professional and Vocational Standards.

The board shall be composed of seven (7) members, all of whom shall be contractors actively engaged in the contracting business and have been so engaged for a period of not less than five (5) years preceding the date of their appointment, and who shall so continue in the contracting business during the term of their office. One member of said board shall be a general engineering contractor, three members shall be general building contractors, and three members shall be specialty contractors. Each member of the board shall be of recognized standing in his branch of the contracting business, shall be at least thirty (30) years of age, and of good character. Each member of the board shall have been a citizen and resident of the State of California for at least five (5) years next preceding his appointment. The members of the board shall be appointed by the Governor within thirty (30) days after the effective date of this act, and shall be appointed with terms of office to expire as follows: One general building contractor and one specialty contractor, January 15, 1936; one general building contractor and one specialty contractor, January 15, 1937; one general building contractor and one specialty contractor, January 15, 1938; the general engineering contractor, January 15, 1939. The Governor shall appoint to fill the vacancy caused by the expiration of the term of office, a member or members from the same branch of the contracting business for a term of four (4) years. Each member shall hold office after the expiration of his term until his successor shall have been duly appointed and qualified. If vacancies shall occur in the board for any cause, the same shall be filled by appointment of the Governor for the balance of the unexpired term. The Governor may remove any member of the board for misconduct, incompetency or neglect of duty.

(b) Each member of the board shall receive a certificate of appointment from the Governor, and before entering upon the discharge of the duties of his office, shall file with the Secretary of State, the constitutional oath of office. No one shall be eligible for appointment on the board who does not at the time hold an unexpired license to operate as a contractor under this act.

(c) The board shall, within thirty (30) days after its appointment by the Governor, meet in the city of Sacramento at a time and place to be designated by the Governor, and organize by electing a chairman, and a vice chairman, each to serve until the close of the fiscal year. Said board shall have power to appoint such committees and to make such by-laws, rules and regulations as it shall deem necessary to carry out the provisions of this act. The board shall adopt a seal for its own use. The seal shall have the words "Contractors' State License Board, State of California", and the care and custody thereof shall be in the hands of the registrar, hereinafter created.

POWERS AND DUTIES

(d) Under such rules and regulations as it may adopt the board shall have the power and authority to examine, classify and qualify applicants for contractors licenses under the provisions of this act. Any member or committee of the board may administer oaths and may take testimony and proofs concerning all matters within the jurisdiction of the board.

(e) The board shall hold not less than four (4) regular meetings each fiscal year, once in July, once in October, once in January and once in April, for the purpose of transacting such business as may properly come before it. At the July meeting of each year the board shall elect officers. Special meetings of the board may be held at such times as the board may provide in its by-laws. Four (4) members shall constitute a quorum at a board meeting. Four (4) members of the board may call a special meeting at any time. Due notice of each meeting and the time and place thereof shall be given each member in such manner as the by-laws may provide. Each member shall be reimbursed for his traveling expenses necessarily incurred in the performance of his duties hereunder.

(f) The board shall have the power to procure such equipment and records as may be necessary to carry out the provisions of this act. The board by and with the approval of the Director of the Department of Professional and Vocational Standards shall appoint a Registrar of Contractors, and fix his compensation, who shall be the executive secretary of the board and shall carry out all of the administrative duties as in this act provided and as delegated to him by the board. For the purpose of administration of this act there may be appointed a deputy registrar, a chief reviewing and hearing officer and such other assistants and subordinates as may be necessary, such appointments to be made in accordance with the provisions of civil service laws.

(g) The board shall have the power in its discretion to review and sustain or reverse by a majority vote any action or decision of the registrar with reference to the suspension, cancellation or revocation of any license issued under the provisions of this act.

(h) There may be created and established within the Contractors' License Bureau a separate division for the pur-

pose of cooperating in the administration and enforcement of the National codes for the construction industry as approved under the provisions of the National Industrial Recovery Act, said division to be known as the Division of Code Coordination. Such division, if created, shall be under the charge of a "Code Coordinator", which position is hereby created, who shall be under the supervision of the registrar. Through the Division of Code Coordination, the registrar may render such assistance as to him seems proper to any officer, authority, or organization charged with the enforcement of a Federal code or codes of fair competition for the construction industry or any subdivision thereof, provided that such officer, authority or organization shall have been appointed in accordance with the provisions of such code or codes, and further provided that, in the sound opinion of the registrar, such assistance shall not be inconsistent with the protection of the public and shall be in the interest of best serving the public safety and welfare.

ROSTER TO BE FILED

(i) The registrar shall keep a complete record of all applications for licenses as prescribed in this act and the board's action thereon and shall prepare annually a roster showing the names, places of business and residence of all persons conducting a contracting business in this State, a copy of such roster to be filed with the Secretary of State, a copy of such roster to be filed with the clerk of each county in the State, and a copy to be furnished to all construction industry associations. Copies of such roster shall be available on application to the registrar at such price per copy as may be fixed by the board. The board, in addition to the usual periodic reports, shall within thirty (30) days prior to the meeting of the regular session of the Legislature submit to the Governor a full and true report of its transactions during the preceding biennium including a complete statement of the receipts and expenditures of the board during the period. A copy of said report shall be filed with the Secretary of State. All records shall be public records.

ISSUANCE

SEC. 6. Section 6 of said act is hereby amended to read as follows:

Sec. 6. Upon receipt of said application and of said fee, if no valid reason exists for further investigation of said applicant, it shall be the duty of the registrar forthwith and within ten days to issue a license to the applicant permitting him to engage in business as a contractor under the terms of this act for the balance of the fiscal year following the application, provided the applicant has furnished such complete information and in such manner as may be required by the registrar in accordance with section 5 of this act. If the information brought to the attention of the registrar concerning the applicant in such that, in the regisrar's discretion, it would be proper to deny the application, the registrar shall forthwith notify the applicant by registered mail, or by personal service, to show cause within such time, not less than five days nor more than thirty days, why the application should not be denied. The license issued under this act shall be signed by the licensee, shall be nontransferable, and shall be displayed in his main office or chief place of business, and satisfactory evidence of the possession thereof, and the current annual renewal thereof shall be exhibited by him upon demand.

It shall be unlawful for any person, firm, copartnership, corporation, or any combination thereof to act in the capacity of a contractor under any license issued hereunder except in the exact name and in accordance with the personnel of the license as set forth in the application for such license, or as later changed as in this act provided, and to do otherwise shall be a fraud and misrepresentation and upon determination by the registrar that there has in fact been such fraud and misrepresentation shall ipso facto act as the cancellation of any such license so issued.

A surviving member or members of a licensed copartnership shall be entitled to continue in business under such license until the expiration date of such license; provided due application therefor is made to the board and same is approved by the board in accordance with such rules and regulations as it may adopt.

COMPLAINTS

SEC. 7. Section 9a of said act is hereby amended to read as follows:

Sec. 9a. Upon the filing with the registrar of a verified complaint charging a licensee with the commission within two years prior to the date of filing of such complaint of any act which is cause for suspension or revocation of license, the registrar must forthwith issue a citation directing the licensee, within ten days after service of the citation upon him, to appear by filing with the registrar his verified answer to the complaint, showing cause, if any he has, why his license should not be suspended or revoked; provided, however, that the appearance of the licensee by the filing of an answer may be waived by the complainant with the approval of the registrar, in which case the registrar shall proceed to a hearing as hereinafter provided. Service of the citation upon the licensee shall be fully effected by mailing a true copy thereof, together with a true copy of the complaint, by United States registered mail in a sealed envelope with postage fully prepaid thereon addressed to the licensee at his latest address of record in the registrar's office. Service of said citation shall be complete at the time of said deposit subject to the provisions of section 1013 of the Code of Civil Procedure of this State. Failure of the license to answer may be deemed an admission by him of the commission of the act or acts charged in the complaint and his license shall thereupon be suspended forthwith pending any hearing of the cause which the registrar in his discretion may order; provided that the registrar shall have power, in the event of such failure to answer, to suspend or revoke the license without further evidence than the verified complaint in the case.

Upon the filing of the answer, the registrar shall fix a time and place for the hearing and give the licensee and the complainant not less than five days' notice thereof. The notice may be served by depositing by registered mail in the United States mail a true copy of the notice inclosed in a sealed envelope with postage thereon fully prepaid and addressed to the licensee and to the complainant, respectively, at his last known address. With the notice to the complainant there shall be attached or inclosed a copy of the answer. If either party has appeared by counsel, the notice shall be given, in like manner, to counsel instead of to the party.

Upon the hearing, the registrar shall hear all revelant and competent evidence material to the issues and shall have power to continue the hearing from time to time as in his judgment may be necessary or proper. After the hearing is concluded and the matter submitted, the registrar shall,

within twenty days after such submission, render his decision in writing, suspending or revoking the license or dismissing the complaint, with a brief statement of his reasons therefor. He shall give to the complainant and the licensee, or their respective attorneys, notice of the decision, by mail, in the same manner as prescribed herein for the giving of notice of hearing. Such decision may provide for the immediate complete suspension by the licensee of all operations as a contractor during the period fixed by the decision. The decision may, however, contain a provision permitting the licensee to complete any or all contracts shown by competent evidence taken at said hearing to be then uncompleted. The decision may also contain a provision imposing upon the licensee compliance with such specific conditions as may be just in connection with his operations as a contractor as disclosed at said hearing and may further provide that until such conditions are complied with no application for restoration of the license so suspended or revoked shall be accepted by the registrar. The decision of the registrar suspending or revoking a license shall take effect immediately upon the service of such notice of decision; provided that the registrar shall have the power to grant a stay of execution of such decision suspending or revoking a license, pending the filing by the licensee of a petition to the superior court for a writ of review or to the registrar for a rehearing as hereinafter provided.

APPEALS

The licensee may within twenty days after service upon him of notice of the rendition of such decision, petition the superior court in and for the county where such licensee resides for a writ of review, under the provisions of Chapter I, Title I, Part III of the Code of Civil Procedure, to review the decision of the registrar, or may within twenty days after such service of notice of the decision of the registrar suspending or revoking a license, apply for a rehearing by filing with the registrar his petition in writing therefor. Within five days after such filing, the registrar shall cause notice thereof to be served upon the complainant by mailing a copy of the petition for rehearing to the complainant in the same manner as herein prescribed for the giving of notice of hearing. Within twenty days after the service of the last mentioned notice the registrar shall either grant or deny said petition and if said petition is not granted within said period of twenty days it shall be deemed to be denied.

In his order granting or denying a rehearing, the registrar shall set forth a statement of the particular grounds and reasons for his action on the petition and shall forthwith mail a copy of the order to the parties who have appeared in support of or in opposition to the petition for rehearing. If a rehearing is granted, the registrar shall vacate the decision theretofore rendered suspending or revoking the license and shall set the matter for further hearing on due notice to the parties, given in the same manner as prescribed herein for the giving of notice of an original hearing.

After submission of the matter upon rehearing, the registrar shall promptly render his decision in writing and give notice thereof in the same manner as of a decision rendered upon an original hearing.

Any citation, notice, or other process or any paper or document provided by this section to be served on any party may be personally served as provided in section 1011 of the Code of Civil Procedure with the same effect as if served by mail as in this act provided.

At any time before a case is finally submitted for decision to the registrar, whether upon an original hearing, or upon a rehearing, a complaint or answer may, upon the motion of either party and with the consent of the registrar, or upon the registrar's own motion, be amended; provided that if new charges are alleged in an amended complaint the defendant may upon request be allowed a reasonable time to prepare his defense to such new charges. Ten days shall be deemed a reasonable time in such case.

Any decision of the registrar, whether upon an original hearing or after a rehearing as herein provided, shall be submitted to a review by the superior court under the provisions of Chapter I, Title I, Part III, of the Code of Civil Procedure. The party desiring such review of the decision of the registrar shall file his petition therefor in the superior court within twenty days after service upon him of the registrar's decision, or, in case a rehearing has been applied for, within twenty days after service upon him of the order denying such application therefor, or within twenty days after service upon him of the registrar's decision upon rehearing, and, in any proceeding for review, the court may in its discretion, upon the filing of a proper bond by the licensee in an amount to be fixed by the court, but not less than one thousand dollars guaranteeing the compliance by the licensee with such specific conditions as may have been imposed upon him by the registrar's decision, permit the license to continue to do business as a contractor pending entry of judgment by the court in the case. The person desiring such review shall pay to the registrar the sum of twenty cents for each one hundred words of the transcript of the record and proceedings certified to the reviewing court.

The suspension or revocation of license as in this act provided may also be embraced in any action otherwise proper in any court involving the licensee's performance of his legal obligation as a contractor.

« « « « With the Architects » » » »

POST OFFICE BUILDINGS

The Federal Government is finally getting busy awarding contracts for post office buildings in California, funds for which have been available for some time. Some of the buildings were originally designed by local architects but the new administration has adopted a policy of turning out the plans in Washington, D.C. Federal buildings, for which contracts have already been awarded or will be let within a short time, include the U.S. Mint, San Francisco, and post office buildigs in San Rafael, Alhambra, South Pasadena, Tracy, Redding, Lodi and Grants Pass, Oregon.

SAN FRANCISCO SKYSCRAPER

The first tall building to be erected in San Francisco in recent years is being designed by W. D. Peugh, architect, 333 Montgomery Street, San Francisco, for the Louis R. Lurie Company. The building will replace an antiquated structure now being razed on the west side of Montgomery Street, between California and Sacramento Streets. It will be ten stories, Class B and will cost $500,000. Cahill Brothers, 206 Sansome Street, San Francisco, have been awarded the contract without competition.

F. FREDERIC AMANDES BUSY

New work in the office of F. Frederic Amandes, 1879-18th Avenue, San Francisco, includes a modernistic store and apartment building in the Sunset District, San Francisco, to be occupied by a local florist; a Colonial dwelling in Ashbury Terrace, San Francisco, for Dr. Hamilton Anderson and an eight-room house in Baywood, San Mateo, for Fred Wissing.

ADDITION TO COLLEGE

A new classroom and library unit to the Pacific Union College, near St. Helena, Napa County, is to be built from plans by Chester H. Treichel, 696 Cleveland Avenue, Oakland. The building will be 170 feet long and will cost $30,000. Mr. Treichel has also made plans for a two-story English style residence for Mrs. J. E. Brown on Ocean View Avenue, Oakland.

PERSONAL

William H. Crowell, architect of Portland, was elected a national director of the American Institute of Architects at the recent convention in Milwaukee, Wisconsin. He succeeds Fred F. Willson of Bozeman, Montana. Mr. Crowell is senior partner in the firm of A. E. Doyle and Associates, Portland, and is a past president of the Oregon Chapter, and at present is a trustee.

Harlan Thomas and Floyd A. Naramore, architects of Seattle, have been elected Fellows of the A.I.A.

A. A. CANTIN BUSY

A. A. Cantin, 557 Market Street, San Francisco, has been doing quite a little theater work of late, principally remodeling. The commissions include remodeling the Grand opera house in Napa; theaters in Vallejo, San Mateo, Salinas and Oakland; also new marquises for the Royal, Alhambra and Castro theaters in San Francisco.

TO MODERNIZE BUILDING

Some $50,000 will be expended by the Phelan Estate for modernizing the two-story Class C store and office building at First and Santa Clara Streets, San Jose. Modern store fronts will be installed with Neon lights and flood lighting. William I. Garren, of San Francisco, is the architect.

BERKELEY RESIDENCE

Professor Baldwin H. Woods will shortly start construction of a new home in Taylor Gardens, Berkeley, from plans by Warren Perry. A $14,000 contract for the work has been let to G. P. W. Jensen, 320 Market Street, San Francisco.

PIEDMONT RESIDENCE

Clarence A. Tantau is architect of a new residence to be built in Piedmont for G. N. Greenwood. Charles Stockholm & Sons have been awarded the contract on their general bid of $20,000.

MODEL HOMES

Sixty-three model homes in forty-five Northern California communities were dedicated the past month to the Better Housing Program of the Federal Housing Administration. Groundbreaking ceremonies at the sites of many of these houses formed part of the National Better Housing Day celebration held on June 15.

One or more display homes have been located in almost every town in Northern California through the efforts of District Director Anglim and his field staff, who have been working since the first of the year planning the Title II demonstration. Jay Keegan, associated director, has been directly in charge of this work in the San Francisco FHA office.

As a result of the FHA drive the display homes to be built in the San Francisco district will represent an investment of approximately $500,000. They are being financed in most cases by individual builders with the aid of long-term insured loans obtained through the National Housing Act provisions. A few were built by cooperative campaigns in which contractors and material dealers joined with the Better Housing Committee in their community.

It is expected that all houses will be completed, furnished and ready for public inspection by September 1, after which they will be open to public inspection for a limited time.

The sixty-three homes which are listed by the Federal Housing Administration include only a few of the thirty demonstration houses that will be erected in Northern California this summer by builders cooperating with the General Electric Company.

Following is the list of communities where one or more homes are to be started under FHA auspices:

Eureka; Lodi; Santa Rosa; Woodland; San Jose (2); Sacramento (2); Placerville; Vallejo; Salinas (6); Pacific Grove; Marysville; Upper Lake; Kelseyville; Willitts; Lakeport; South San Francisco; San Bruno (American Legion Hall); San Carlos (5); Fort Bragg; Richmond; Redding; Santa Clara (4); Piedmont.

Oakland; San Leandro; Hayward; Castro Valley; Martinez; Antioch; Alameda; Merced; Fresno (4); Hanford; Santa Cruz; San Francisco (5); San Mateo; Stockton; Modesto; Yuba City; Bell Haven; Millbrae; Redwood City; Berkeley; Tulare; Visalia.

HOSPITAL ADDITION

G. N. Hilburn, of Modesto, is preparing plans for a two-story reinforced concrete nurses' quarters at the Newman Hospital. Estimated cost is $25,000.

FEES FOR VETERANS HOMES

The State Association of California Architects, has adopted the following schedule of services and charges to make possible *limited* architectural services in the program of the Veterans' Welfare Board operating under the Farm and Home Purchase Act Services rendered under this class—

A. Preliminary visit to site.

B. Receiving and discussing client's preliminary data.

C. Preparation and presentation of preliminary sketch studies; developing preliminary data to the satisfaction of the client.

D. Preparation of working drawings: 1. Plot plan; 2. Foundation plan; 3. First floor plan; 4. Second floor plan; 5. Front elevation; 6. Rear elevation; 7. Side elevation; 8. Side elevation; 9. Cross sections; 10. Details of casework.

E. Preparation of specifications: Standard form (4 sets).

F. Obtain owner's approval of working drawings and specifications.

G. Blue printing working drawings (4 sets).

H. Preparing contract forms and recording same.

I. Supervision of construction — checking construction at time payments are due.

J. Checking contractors statements and issuing certificates for same.

K. Issuing orders affecting changes in the contracts.

L. Drawing and filing notice on completion.

Should the owner desire additional services not specifically mentioned herein a special charge will be made for the same by the architect.

Charges for services under this class—5% of total cost.

It is to be clearly understood that the services to be rendered are by no means complete architural services, such as are usually rendered by architects on the regular fee basis, but rather are modified services, scaled down to suit the requirements of a specific group.

It is to be further understood that all these services will be so rendered as to meet the basic requirements of the Veterans' Welfare Board as to presentation of each individual housing problem. Note: The Veterans' Welfare Board proposes the above as part of their loan setup to be given to applicants seeking loans.

BERKELEY RESIDENCES

Newsom & Newsom, Russ Building, San Francisco, have completed plans for a residence to be built on Santa Barbara Road, Berkeley, for Theodore Brower. They have also completed revised drawings for a house for Boyce Clarke on Grizzly Peak Boulevard, Berkeley.

FARM HOME REMODELING FILM

"The Will and the Way", a two-reel motion picture, showing how an 80-year old farmhouse in Wisconsin was turned into a modern home by an ambitious couple, who inherited it, has just been released by the Division of Motion Pictures, Extension Service, of the U. S. Department of Agriculture, for the use of schools, colleges, social organizations and any others interested in the remodeling of farmhouses. The picture was made for the Bureau of Agricultural Engineering.

The film is available in 16 and 25 milimeter sizes and takes about 20 minutes to show. A short film strip, used by the Federal Housing Administration in illustrating its house-remodeling program also is available. Short lecture notes accompany the film strip. Either of these films and many others may be borrowed from the Extension Service by paying transportation costs.

The 80-year old house was of frame construction and sound, but had no modern conveniences. The remodeled home is larger, has eight rooms, a bathroom, water supply, electricity, heated garage, fruit and vegetable storage and a convenient kitchen. It is insulated for comfort in summer and winter. Because the stone from an old house down the road could be had for the hauling, the owners decided to use it for the exterior.

Throughout the picture, the farmer and his wife, Mr. and Mrs. John B. Ford, are seen planning and working together on the remodeling of the old homestead.

FIFTEEN PASS EXAMINATIONS

A larger than usual percentage of candidates for registration as engineers, passed the last written examination, according to results announced by the California State Board of Registration for Civil Engineers. Of those taking the examination for civil engineers, 50 per cent passed; for authority to use the title structural engineer, 45 per cent passed, but candidates for registration as land surveyors did not fare so well, only 25 per cent being successful.

The list of successful candidates as announced by Assistant Secretary Pecos H. Callahan follows:

Civil Engineers — Douglas H. Burnett, San Francisco; William T. Ingram, Stockton; Philip N. Fletcher, Berkeley; Walter B. Whisenand, Los Angeles; Harold V. Peterson, Los Angeles; Nathan D. Whitman, Jr., San Francisco; Philip Cravitz, Los Angeles; Daniel E. Whelan, Jr., Los Angeles; James P. Bole, Long Beach; John B. Julio, Los Angeles; Howard G. Smits, Glendale.

Structural—Ernest Maag, Pasadena; Kirby B. Ferguson, Venice; Rolland Cravens, Los Angeles.

Land Surveyor—J. F. Siegfried, Nevada City.

Civil engineers certificates and land surveyors licenses were due to be renewed for the fiscal year 1935-36 June 30, 1935, and unless so renewed became invalid July 1.

The scheduled amount for the reinstatement fee, including penalty, when application for reinstatement is made after June 30, is as follows: If paid before July 31, $6.00; after July 31, but before August 31, $7.00; after August 31, but before September 30, $8.00; after September 30, but before October 31, $9.00; after October 31 (maximum), $10.00.

NEW INSTITUTE OFFICERS

The 67th convention of the American Institute of Architects, elected the following officers for the current year:

President, Stephen F. Voorhees, New York.

First vice-president, Louis Le Beaume, St. Louis, Missouri.

Second vice-president, Francis P. Sullivan, Washington, D.C.

Secretary, Charles T. Ingham, Pittsburgh, Pennsylvania.

Treasurer, Edwin Bergstrom, Los Angeles, California.

Directors (middle Atlantic division), William G. Nolting, Baltimore, Maryland.

Directors (Great Lakes division), Walter R. McCormack, Cleveland, Ohio.

Directors (Western division), William H. Crowell, Portland, Oregon.

FEDERAL FARM COLONY

N. Lester Troast, architect, with head office at Juneau, Alaska, and member of the Washington State Chapter, A.I.A., is busily engaged this summer in supervising the design and construction of houses and buildings for the Federal farm colony in the Matanuska Valley, about 40 miles north of Anchorage. The community center will be located at Palmer, where a new school, teachers' home, a duplex teachers' residence, a creamery, poultry hatchery, trading post and grain mill are to be erected in addition to houses and outbuildings for 200 families.

TWO ENGLISH DWELLINGS

Plans have been completed by Martin J. Rist, Phelan Building, San Francisco, for two English dwellings for an unnamed client to be built on Maconder Way, south of Paloma Avenue, Ingleside Terrace, San Francisco.

LOS ANGELES CHAPTER

Architectural service is being sought more today than it has been for several years, according to figures compiled by the Federal Housing Administration. In Los Angeles the demand for architects is said to be eight times greater than it was on similar projects several years ago. This statement was made by David J. Witmer at the regular monthly meeting of Southern California Chapter, The American Institute of Architects, held at the Clark Hotel in Los Angeles, June 25.

Mr. Witmer revealed that approximately 40 per cent of the applications for loans on new construction, under Title II of the National Housing Act, are accompanied by plans drawn by certified architects. This figure was compared to one of several years ago, when a survey of residence permits issued by the Los Angeles city building department showed but 5 per cent having architectural services.

Without exception, members of the Federal Housing Administration staff who attended the meeting were of one opinion regarding architectural services. All of them are either appraisers or builders by profession and, therefore, appreciate the value of this sort of service. They are all agreed, too, on another point where the architect can render a real service to his client, and that is in determining the suitability of a building to the neighborhood in which it is to be built.

Reports of delegates to the national convention of the Institute, which was held in Milwaukee the last week in May, were made during the business session of the meeting.

Ralph C. Flewelling, vice-president of the Chapter, reported in a general way on that part of the program devoted to business, while Eugene Weston, Jr., secretary of the Chapter, gave a report on personalities, the trip to the City of Kohler and the Institute banquet.

The pre-convention meeting of state associations of architects, held in Milwaukee, May 27, was covered in the report of Robert H. Orr, treasurer of the State Association of California Architects. Seven states, four of which are Institute members, were represented at this meeting.

Edwin Bergstrom, Institute treasurer, reported that the proposed classification of members was voted out, and that the constitution and by-laws were combined.

Two new members were introduced, Walter Wurdeman and Welton D. Becket, both of the firm of Plummer, Wurdeman and Becket of Los Angeles.

Sumner Spaulding, who presided at the meeting, announced that within the next two months the Chapter would meet at the planetarium in Griffith Park. A meeting in San Diego and another at one of the airports have been scheduled.

BOOK REVIEWS

By Edgar N Kierulff

HOUSING PROBLEMS AND POSSIBILITIES IN THE UNITED STATES; By Frank Watson; Harper & Brothers, Publishers, 49 East 33rd Street, New York City; Price $1.25.

This book comprises a very comprehensive study of improved housing by one who is in active association with the Federal Housing Administration. Some of the questions covered are of such widespread interest as:

(1) Why isn't the housing problem solved?
(2) What are the needs of American housing?
(3) How can the home mortgage problem be settled?

The new government housing program is clearly explained; likewise the questions relative to banks, insurance companies, and building and loan associations.

The author drafted the National Housing Act, and speaks through this volume with thoroughness coming only to one who has been in authority.

BUILDING LINES AND RESERVATIONS FOR FUTURE STREETS, Their establishment and protection: (Harvard City Planning Studies Number 8.) By Russell Van Nest Black; assisted by Mary Hedges Black, Harvard University Press, Cambridge, Mass. Price: not given.

Reiterating a previous review I feel that the Harvard University City Planning series needs very little introduction. Their excellence has been very definitely proven.

This new volume deals with the problem of street lines, widening, and establishing of proper zones and the protection of street lines. As heretofore the study presented deals with the question fully and leaves little to conjecture. Again this new addition is recommended to the architectural profession.

REHOUSING URBAN AMERICA: by Henry Wright; Columbia University Press, 2960 Broadway, New York City, N.Y. Price: $7.50.

A remarkably well illustrated volume dealing with a vital question in the nation today. As the Foreword so ably states—"Technically, economically, and socially, housing is in America one of the backward arts".

The contents are divided into three parts, each with its appropriate sub-chapters.

The three parts consist of:—

(1) Housing, the focal point in rehabilitating our cities.
(2) Study of the recent evolution and development of housing techniques.
(3) A forecast of planning advancement.

This book should prove of great interest to members of the architectural profession and to those primarily interested in city planning and rehousing.

MODERNIZING BUILDINGS FOR PROFIT: by Kenneth Kingsley Stowell; Prentice-Hall Inc. 70 Fifth Avenue, New York City, N.Y. Price: $6.50.

The above volume is one of the finest of its type and subject that has passed through this department. Extremely well illustrated, lucid in explanaton and concise in detail, it fully covers a not only interesting phase of American building but one of vital importance in this modern age.

To the architect who is engaged in the modernization of any type of building in the United States at this time or who contemplates engaging in such practice, we fully recommend this book as a working tool and a valuable adjunct to his present and future practice.

NATIONAL HOUSING ACT AMENDED

The brightest spot in the Federal recovery news last month was the signing of the HOLC bill by President Roosevelt which carried amendments to the National Housing Act, extending the operation of the modernization credit plan until April 1, 1936. It was originally provided that this section of the act would pass out of existence on January 1, 1936.

Further news which it is anticipated will be a stimulus to repair and modernization activity was included in the amendment permitting financial limits for modernization and repair up to a maximum of $50,000 in the field of income producing and certain other large properties. The limit for home improvement remains at $2,000 but the larger maximum allows such properties as apartments, hotels, offices, business or other commercial buildings, hospitals, orphanages, colleges, schools, or manufacturing or industrial plants to participate in the benefits of the National Housing Act.

SAN FRANCISCO CHAPTER

The regular monthly meeting of The American Institute of Architects, Northern California Chapter, was held at the Clift Hotel, San Francisco, May 28, Albert J. Evers, presiding.

Present were Messrs. Abe Appleton, John Bakewell, Jr., E. Geoffrey Bangs, John K. Branner, Morris M. Bruce, Albert J. Evers, William I. Garren, Henry H. Gutterson, Wayne S. Hertzka, Ellsworth E. Johnson, Kendall J. Masten, Charles H. Maury, Wm. Gladstone Merchant, Harry M. Michelsen, James H. Mitchell, Irving F. Morrow, John B. McCool, Warren C. Perry, Roland I. Stringham, John Davis Young.

The report of the exhibit committee on the Biennial Honor Award Exhibit was approved and accepted. It was voted that the Chapter underwrite the deficiency, including the printing of Certificates of Award, in amount not to exceed $50.

A unanimous vote of thanks was extended to the exhibit committee and its chairman, John Knox Ballantine, Jr., for the splendid manner in which the exhibit was handled.

The president invited discussion of the proposed Institute Amendment providing for enlarged membership classifications, to which various members responded.

Following the discussion, the motion of Mr. Bangs was uanimously carried that it be the sense of the meeting to favor the existing form providing for State Associations, with recommendation that nothing be done that will destroy the integrity of the Institute as now constituted. It was further instructed that the Chapter's delegation to the convention be informed of this sentiment.

The president reported that a communication had been sent to the San Francisco Bay Exposition, expressing the hope that local men would be considered in the appointment of architects for the work.

After discussion of this matter, it was moved by Mr. Appleton and carried, that the president, secretary and Messrs. Bangs, Garren and Morrow be a committee to draw up a further letter offer-

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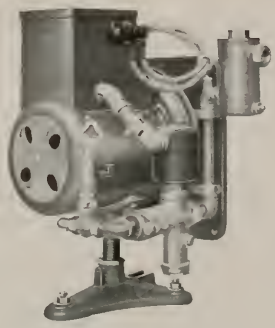

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ing the assistance and cooperation of the Chapter and soliciting the Board of Directors of the Exposition to look with favor upon the local field.

It was moved by Mr. Johnson and carried that should the Chapter be approached by the Board of Directors of the Exposition, the Board of Directors of the Chapter be authorized to help them in any way it can.—J.H.M.

FAVOR CODE RETENTION

Simultaneously with an official notification to nearly forty thousand general contractors of the Nation by the Divisional Code Authority for General Contractors, Inc., of its demise in view of the recent supreme court decision invalidating the NRA, the Associated General Contractors of America—national trade association of the general contracting industry—has issued a call to every general contractor of record to get behind a concerted movement to support voluntarily the principles of the now officially defunct code of fair competition under which they have been operating for the past fourteen months. The San Francisco building industry has been one of the first to endorse the movement.

Following a meeting of the executive committee of the Association, at Washington, D.C., Nick F. Helmers, of St. Paul, president of the Associated General Contractors, in an open letter which has just been sent out, reported that the committee had found indisputable evidence of industry-consciousness on the part of general contractors under the compulsory code, which forces the conclusion that the industry is capable of a larger measure of self-regulation than it has practiced in the past.

"We believe," Helmers' open letter stated, "that even those opposed in principle to the codes have found that there are many provisions in the general contractors' code which if continued, would benefit the industry, such as the articles on: Receipt of bids; time limit of awards; bid shopping; limitation of alternates; uniformity of information to bidders; rebates, etc.

"Observance of these principles will enable the industry to maintain its status and cause the public to recognize its members as men of integrity and responsibility. In view of these facts, we propose that our industry continue to give full support to the program of the President, which has as its objective the application of equitable practices within this industry.

"As to wages, hours and conditions of employment, we feel that the present hours (40) should be retained, with an extension to 48 hours for men who are required to work in excess of 40 hours in order to maintain the 40-hour week for the crew as a whole. There should also be proper exemption for work: [Turn to Page 67]

Estimator's Guide

Giving Cost of Building Materials, Wage Scale, Etc.

In many instances NRA prices are still in force. Some chiseling may be looked for shortly. Another month may find some material changes in price quotations. Amounts quoted are figuring prices and are made up from average quotations furnished by material houses to three leading contracting firms of San Francisco.

NOTE—Add 2½% Sale Tax on all materials but not labor. Lumber prices slightly lower.

All prices and wages quoted are for San Francisco and the Bay District. There may be slight fluctuation of prices in the interior and southern part of the state. Freight cartage, at least, must be added in figuring country work.

Bond—1½% amount of contract.

Brickwork—
Common, $35 to $40 per 1000 laid, (according to class of work).
Face, $75 to $90 per 1000 laid, according to class of work).
Brick Steps, using pressed brick, $1.10 lin. ft.
Brick Walls, using pressed brick on edge, 60c sq. ft. (Foundations extra.)
Brick Veneer on frame buildings, $.75 sq. ft.
Common, f. o. b. cars, $15.00 job cartage.
Face, f.o.b. cars, $45.00 to $50.00 per 1000, carload lots.

HOLLOW TILE FIREPROOFING (f.o.b. job)

3x12x12 in.	$ 84.00 per M
4x12x12 in.	94.50 per M
6x12x12 in.	126.00 per M
8x12x12 in.	225.00 per M

HOLLOW BUILDING TILE (f.o.b. job) carload lots).

8x12x5½	$ 94.50
6x12x5 ½	73.50

Discount 5%.

Composition Floors — 18c to 35c per sq. ft. In large quantities, 16c per sq. ft. laid.
Mosaic Floors—80c per sq. ft.
Duraflex Floor—23c to 30c sq. ft.
Rubber Tile—50c per sq. ft.
Terazzo Floors—45c to 60c per sq. ft.
Terazzo Steps—$1.60 lin. ft.

Concrete Work (material at San Francisco bunkers) — Quotations below 2000 lbs. to the ton. $2.00 delivered.

No. 3 rock, at bunkers	$1.65 per ton
No. 4 rock, at bunkers	1.65 per ton
Elliott top gravel, at bnkrs.	1.75 per ton
Washed gravel, at bunkrs	1.75 per ton
Elliott top gravel, at bnkrs.	1.75 per ton
City gravel, at bunkers	1.40 per ton
River sand, at bunkers	1.50 per ton
Delivered bank sand	120 cu. yd.

Note—Above prices are subject to discount of 10c per ton on invoices paid on or before the 15th of month. following delivery.

SAND
Del Monte, $1.75 to $3.00 per ton.
Fan Shell Beach (car lots, f. o. b. Lake Majella), $2.75 to $4.00 per ton.
Cement, $2.25 per bbl. in paper sks.
Cement (f.o.b.) Job. S.F.) $2.90 per bbl.
Cement (f.o.b. Job, Oak.) $2.90 per bbl.
Rebate of 10 cents bbl. cash in 15 days.
Calaveras White . . . $6.00 per bbl.
Medusa White . . . . . $8.00 per bbl.
Forms, Labors average 25.00 per M
Average cost of concrete in place, exclusive of forms, 30c per cu. ft.
4-inch concrete basement floor.....12½c to 14c per sq. ft.
4½ inch Concrete Basement floor .....14½c to 16c per sq. ft.
2-inch rat-proofing....6½c per sq. ft.
Concrete Steps ..... $1.25 per lin. ft.

Dampproofing and Waterproofing—
Two-coat work, 15c per yard.
Membrane waterproofing—4 layers of saturated felt, $4.00 per square.
Hot coating work, $1.80 per square.
Meduca Waterproofing, 15c per lb., San Francisco Warehouse.

Electric Wiring—$12.00 to $15.00 per outlet for conduit work (including switches).
Knob and tube average $7.00 per outlet, including switches.

Elevators—
Prices vary according to capacity, speed and type. Consult elevator companies. Average cost of installing an automatic elevator in four-story building, $2800; direct automatic, about $2700.

Excavation—
Sand, 50 cents; clay or shale, 80c per yard.
Teams, $10.00 per day.
Trucks, $18 to $25 per day.
Above figures are an average without water. Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

Fire Escapes—
Ten-foot balcony, with stairs, $75.00 per balcony, average.

Glass (consult with manufacturers)—
Double strength window glass. 15c per square foot.
Quartz Lite, 50c per square foot.
Plate 75c per square foot.
Art, $1.00 up per square foot.
Wire (for skylights), 35c per sq. foot.
Obscure glass, 26c square foot.
Note—Add extra for setting.

Heating—
Average, $1.90 per sq. ft. of radiation, according to conditions.

Iron—Cost of ornamental iron, cast iron. etc., depends on designs.

Lumber (prices delivered to bldg. site)

No. 1 common	$30.00 per M
No. 2 common	25.00 per M
Selection O. P. common	35.00 per M
2x4 No. 3 form lumber	17.00 per M
1x4 No. 2 flooring VG	48.00 per M
1x4 No. 3 flooring VG	42.00 per M
1x6 No. 2 flooring VG	48.00 per M
1¼x4 and 6, No. 2 flooring	52.00 per M

Slash grain—

1x4 No. 2 flooring	$39.00 per M
1x4 No. 3 flooring	34.00 per M
No. 1 common run T. & G.	30.00 per M
Lath	5.00 per M

Shingles (add cartage to prices quoted)—

Redwood, No. 1	$ 1.00 per bdle.
Redwood, No. 2	.80 per bdle.
Red Cedar	.95 per bdle.

Hardwood Flooring (delivered to building)—

13-16x3¼" T & G Maple	$120.00 M ft.
1 1-16x2¼" T & G Maple	132.00 M ft.
⅞x3½ sq. edge Maple	140.00 M ft.

	13-16x2¼" T&G	⅝x2" Sq.Ed.	5-16x2" Sq.Ed.
Clr. Qtd. Oak	$200.00 M	$150.00 M	$130 M
Sel. Qtd. Oak	140.00 M	120.00 M	135 M
Clr. Pla. Oak	135.00 M	107.00 M	120 M
Sel. Pla. Oak	120.00 M	88.00 M	107 M
Clear Maple	140.00 M	100.00 M	
Laying & Finishing	13c ft.	11 ft.	10 ft.

Wage—Floor layers, $7.50 per day.

Building Paper—

1 ply per 1000 ft. roll	$3.50
2 ply per 1000 ft. roll	5.00
3 ply per 1000 ft. roll	6.25
Brownskin, 500 ft. roll	4.20
Pro-tect-o-mat, 1000 ft. roll	12.00
Sisalkraft, 500 ft. roll	5.00
Sash cord com. No. 7	$1.20 per 100 ft.
Sash cord com. No. 8	1.50 per 100 ft.
Sash cord spot No. 7	1.90 per 100 ft.
Sash cord spot No. 8	2.25 per 100 ft.

Sash weights cast iron, $50.00 ton
Nails, $3.50 base.
Sash weights, $45 per ton.

Millwork—
O. P. $100.00 per 1000. R. W., $106.00 per 1000 (delivered).
Double hung box window frames, average, with trim, $6.50 and up, each.
Doors, including trim (single panel, 1⅜ in. Oregon pine) $8.00 and up, each.
Doors, including trim (five panel, 1⅜ in. Oregon pine) $6.50 each.
Screen doors, $4.00 each.
Patent screen windows, 25c a sq. ft.
Cases for kitchen pantries seven ft. high, per lineal ft., $6.50 each.
Dining room cases, $7.00 per lineal foot.
Labor—Rough carpentry, warehouse heavy framing (average), $12.00 per M.
For smaller work average, $27.50 to $35.00 per 1000.

Marble—(See Dealers)

Painting—

Two-coat work ..... 29c per yard
Three-coat work .....40c per yard
Cold Water Painting .....10c per yard
Whitewashing ..... 4c per yard
Turpentine, 80c per gal., in cans and 75c per gal. in drums.
Raw Linseed Oil—80c gal. in bbls.
Boiled Linseed Oil—85c gal. in bbls.
Medusa Portland Cement Paint, 20c per lb.

Carter or Dutch Boy White Lead in Oil (in steel kegs).

Per Lb.
1 ton lots, 100 lbs. net weight 10¾c
500 lb. and less than 1 ton lots 11c
Less than 500 lb. lots.....11½c

Dutch Boy Dry Red Lead and Litharge (in steel kegs).

1 ton lots, 100 lb. kegs, net wt. 10¾c
500 lb. and less than 1 ton lots 11c
Less than 500 lb. lots.....11½c

Red Lead in Oil (in steel kegs)

1 ton lots, 100 lb. keg s,net. wt. 12½c
500 lb. and less than 1 ton lots 12½c
Less than 500 lb. lots.....13c
Note—Accessibility and conditions cause wide variance of costs.

Patent Chimneys—

6-inch	$1.00	lineal foot
8-inch	1.50	lineal foot
10-inch	1.75	lineal foot
12-inch	2.00	lineal foot

Plastering—Interior—

	Yard
1 coat, brown mortar only, wood lath	$0.60
2 coats, lime mortar hard finish, wood lath	.70
2 coats, hard wall plaster, wood lath	.80
3 coats, metal lath and plaster	1.25
Keene cement on metal lath	1.30
Ceilings with ¾ hot roll channels metal lath	.75
Ceilings with ¾ hot roll channels metal lath plastered	1.50
Shingle partition ¾ channel lath 1 side	.85
Single partition ¾ channel lath 2 sides 2 inches thick	2.75
4-inch double partition ¾ channel lath 2 sides	1.30
4-inch double partition ¾ channel lath 2 sides plastered	3.00

Plastering—Exterior—

	Yard
2 coats cement finish, brick or concrete wall	$1.10
2 coats Atlas cement, brick or concrete wall	1.35
3 coats cement finish No. 18 gauge wire mesh	1.50
3 coats Medusa finish No. 18 gauge wire mesh	2.00

Wood lath, $5.50 per 1000.
2.5-lb. metal lath (dipped) ..... .17
2.5-lb. metal lath (galvanized) ..... .20
3.4-lb. metal lath (dipped) ..... .22
3.4-lb. metal lath (galvanized) ..... .28
¾-inch hot roll channels, $72 per ton.
Finish plaster, $18.90 ton; in paper sacks, Dealer's commission, $1.00 off above quotations.
$13.85 (rebate 10c sack).
Lime, f.o.b. warehouse, $2.25bbl.; cars, $2.15
Lime, bulk (ton 2000 lbs.), $16.00 ton.
Wall Board 5 ply, $50.00 per M.
Hydrate Lime, $19.50 ton.
Plasterers Wage Scale .....$1.25 per hour
Lathers Wage Scale ..... 1.25 per hour
Hod Carriers Wage Scale ..... 1.10 per hour

Composition Stucco—$1.60 to $2.00 sq. yard (applied).

Plumbing—

From $65.00 per fixture up, according to grade, quantity and runs.

Roofing—

"Standard" tar and gravel, $6.00 per sq. for 30 sqs. or over.
Less than 30 sqs. $6.50 per sq.
Tile, $20.00 to $35.00 per square.
Redwood Shingles, $11.00 per square in place.
Cedar Shingles, $10 sq. in place.
Recoat. with Gravel, $3.00 per sq
Slate, from $25.00 to $60.00 per sq. laid, according to color and thickness.

Sheet Metal—

Windows—Metal, $2.00 a sq. foot.
Fire doors (average), including hardware, $2.00 per sq. ft.

Skylights—

Copper, 90c sq. ft. (not glazed).
Galvanized iron, 25c sq. ft. (not glazed).

Steel—Structural

$100 ton (erected), this quotation is an average for comparatively small quantities. Light truss work higher. Plain beams and column work in large quantities $80 to $90 per ton cost of steel; average building, $89.00.

Steel Reinforcing—

$85.00 per ton, set, (average).

Stone—

Granite, average, $6.50 cu. foot in place.
Sandstone, average Blue, $4.00, Boise, $3.00 sq. ft. in place.
Indiana Limestone, $2.80 per sq. ft. in place.

Store Fronts—

Copper sash bars for store fronts. corner, center and around sides. will average 75c per lineal foot.
Note—Consult with agents.

Tile — Floor, Wainscot, Etc. — (See Dealers).

SAN FRANCISCO BUILDING TRADES WAGE SCALE

Established by The Impartial Wage Board November 9, 1932. Effective on all work January 1, 1933, to remain in effect until June 30, 1933, and for so long thereafter as economic conditions remain substantially unchanged.

This scale is based on an eight-hour day and is to be considered as a minimum and employees of superior skill and craft knowledge may be paid in excess of the amounts set forth herein.

CRAFT	Journeyman Mechanics
Asbestor Workers	$6.40
Bricklayers	9.00
Bricklayers' Hodcarriers	5.60
Cabinet Workers (Outside)	7.20*
Caisson Workers (Open) Water Work	8.00
Carpenters	7.20*
Cement Finishers	7.20
Cork Insulation Workers	7.20
Electrical Workers	8.00
Electrical Fixture Hangers	7.00
Elevator Constructors	8.68
Elevator Constructors' Helpers	6.08
Engineers, Portable and Hoisting	8.00
Glass Workers (All Classifications)	6.80
Hardwood Floormen	7.20*
Housemovers	6.40
Housesmiths, Architectural Iron (Outside)	7.20
Housesmiths, Reinforced Concrete, or Rodmen	7.20

*Established by Special Board

CRAFT	Journeyman Mechanics
Iron Workers (Bridge and Structural)	9.60
Iron Workers (Hoisting Engineers)	10.00
Laborers (6-day week)	5.00
Lathers, Channel Iron	8.00
Lathers, All Other	6.80
Marble Setters	8.00
Marble Setters' Helpers	5.00
Millwrights	7.20*
Mosaic and Terrazzo Workers (Outside)	7.20
Mosaic and Terrazzo Helpers	5.00
Painters	7.00
Painters, Varnishers and Polishers (Outside)	7.00
Pile Drivers and Wharf Builders	$ 8.00
Pile Drivers Engineers	9.00
Plasters and Hodrarriers (See wage scale under Plastering).	
Plumbers	8.00
Roofers (All classifications)	6.40
Sheet Metal Workers	7.20
Sprinkler Fitters	9.00
Steam Fitters	8.00

CRAFT	Journeyman Mechanics
Stair Builders	7.20*
Stone Cutters, Soft and Granite	6.80
Stone Setters, Soft and Granite	8.00
Stone Derrickmen	7.20
Tile Setters	8.00
Tile Setters' Helpers	5.00
Tile, Cork and Rubber	7.20
Welders, Structural Steel Frame on Buildings	9.60
Welders, All Others on Buildings	8.00
Auto Truck Drivers—Less than 2,500 lbs.	5.50
Auto Truck Drivers—2,500 lbs. to 4,500 lbs.	6.00
Auto Truck Drivers—4,500 lbs. to 6,500 lbs.	6.50
Auto Truck Drivers—6,500 lbs. and over	7.00
General Teamsters, 1 Horse	5.50
General Teamsters, 2 Horses	6.00
General Teamsters, 4 Horses	6.50
Plow Teamsters, 4 Horses	6.50
Scraper Teamsters, 2 Horses	6.00
Scraper Teamsters, 4 Horses	6.00

GENERAL WORKING CONDITIONS

1. Eight hours shall constitute a day's work for all crafts, except as otherwise noted.
2. Where less than eight hours are worked pro rata rates for such shorter period shall be paid.
3. Plasterers' Hodcarriers, Bricklayers' Hodcarriers, Roofers' Laborers and Engineers, Portable and Hoisting, shall start 15 minutes before other workmen, both at morning and at noon.
4. Five days, consisting of not more than eight hours a day, on Monday to Friday inclusive, shall constitute a week's work.
5. The wages set forth herein shall be considered as net wages.
6. Except as noted the above rates of pay apply only to work performed at the job site.
7. Transportation costs in excess of twenty-five cents each way shall be paid by the contractor.
8. Traveling time in excess of one and one-half hours each way shall be paid for at straight time rates.
9. Overtime shall be paid as follows: For the first four hours after the first eight hours, time and one-half. All time thereafter shall be paid double time. Saturdays (except Laborers), Sundays and Holidays from 12 midnight of the preceding day, shall be paid double time. Irrespective of starting time, overtime for Cement Finishers shall not commence until after eight hours of work.
10. On Saturday Laborers shall be paid straight time for an eight-hour day.
11. Where two shifts are worked in any twenty-four hours, shift time shall be straight time. Where three shifts are worked, eight hours' pay shall be paid for seven hours on the second and third shifts.
12. All work, except as noted in paragraph 13, shall be performed between the hours of 8 A. M. and 5 P. M.
13. In emergencies, or where premises cannot be vacated until the close of business, men reporting for work shall work at straight time. Any work performed on such jobs after midnight shall be paid time and one-half up to four hours of overtime and double time thereafter (provided, that if a new crew is employed on Saturdays, Sundays or Holidays which has not worked during the five preceding working days, such crew shall be paid time and one-half. No job can be considered as an emergency job until it has been registered with the Industrial Association and a determination has been made that the job falls within the terms of this section).
14. Recognized holidays to be: New Year's Day, Decoration Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Christmas Day.
15. Men ordered to report for work, for whom no employment is provided shall be entitled to two hours' pay.
16. This award shall be effective in the City and County of San Francisco.

NOTE: Provision of paragraph 13 appearing in brackets ( ) does not apply to Carpenters, Cabinet Workers (Outside), Hardwood Floormen, Millwrights, or Stair Builders.

"(a) On projects located at points so remote and inaccessible that camps or floating plants are necessary for the housing or boarding of the majority of labor employed.

"(b) On such remote projects when working time has been lost because of inclement weather or unavoidable delays in any one week.

"(c) On projects in localities where a sufficient amount of qualified labor is not available in the immediate vicinity of the work.

"We believe that in this industry the minimum wage of 40c per hour should be maintained wherever practicable with a possible differential for any territory where such rate is found to be economically unsound or where its maintenance results in discrimination against the construction industry. We recommend that rates of pay be not disturbed on existing contracts made in contemplation of code requirements."

Helmers declared that where area agreements on wages have been formulated under the operation of the compulsory code, and the general contractors of the area are satisfied that the agreement was negotiated after appropriate representation from general contractors, the agreement should continue to be recognized. The industry can be stabilized by voluntarily setting up complete schedules in the various areas providing for rates and classification for each of the three groups of contractors, viz., builders, heavy construction and railroad and highways, Helmers stated.

He pointed out that construction men have used very little child labor; "since youngsters usually endanger both themselves and others, they are considered undesirable on construction work."

Edward J. Harding, managing director of the association, invited free and full comment from general contractors on Helmers' letter, and indicated that in all probability the Associated General Contractors would have the full support of labor in its effort to maintain decent competitive conditions within the industry.

CHAS. F. SWIGERT

Charles F. Swigert, who set the foundation of both San Francisco bridges firmly on the floor of the bay after engineers had wondered for half a century whether it could be done, died suddenly at the Palace Hotel, San Francisco, in June.

A specialist in bridge foundations, Mr. Swigert had been engaged in his profession for 54 years. All but four years of this period was spent with the Pacific Bridge Corporation of Portland. This company, of which he was president at the time of his death, built the piers for the Golden Gate Bridge. A component company, the Transbay Construction Company (of which he was president also) set the west piers for the San Francisco-Oakland Bay Bridge.

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INSPECTORS NAMED

William G. Bonelli, California Registrar of Contractors and Director of the Department of Professional and Vocational Standards in Governor Merriam's cabinet, has announced appointment of ten inspectors under the civil service laws of the state.

The minimum experience required of all applicants before being allowed to take this examination provided that every person competing for these positions must have had a college education with specialization in architecture or engineering, plus some practical experience in the construction field, or a lesser period of education, but with correspondingly longer responsible work in the building field. Every applicant was then required to pass the written examination with a mark of 70% or better in order to take the oral examination.

The appointees are as follows:

Harry Abrahams, Jess W. Aykroyd, J. Layman Beall, Nelson Berger, Henry G. Clark, John Creighton, Willard Evison, Leonard H. Ford, Albert G. Kelly and August Rahlves.

"It is interesting to note," states Registrar Bonelli, who is from the Southern part of the state, "that seven out of these ten inspectors who passed at the top of the Civil Service list were from the Northern part of the state. This caused some confusion due to the fact that most of the replacements were in the Southern California section.

NEW SAN FRANCISCO MINT

The new San Francisco mint which will replace the historic structure at Mission and Fifth Streets, will soon be a reality. Plans for the new building to be located at Duboce and Buchanan Streets, have been completed in Washington, and bids for construction work will be received this month. What will become of the present mint remains to be seen. Many are in favor of its preservation.

Blue prints for the new $1,000,000 structure show a four-story building about 200 feet square, designed for granite with a keynote of extreme repose and dignity to give the maximum of light and still follow the classical tradition in mass and proportion.

One of the interesting features of the exterior is to be a series of huge granite coins applied as an ornamental motif against the face of the granite piers which form the outer facade.

These coins will tell the history of coinage from those first struck down to the present, and each disk will be three feet in diameter. The entire decorative design, both inside and out, will be based on symbolic forms taken from the processes of minting.

The portals of the mint are to be guarded by massive bronze doors, electrically operated. The interior is to be arranged as a highly efficient plant, the finest in the world for the coinage of money.

GRAVELITE PATENT CLEARED

Patent infringement suits against the California Toll Bridge Authority, Gravelite, Inc., and certain contractors engaged on the transbay bridge, filed in the Federal Court in San Francisco last March, have been dismissed by the plaintiffs, the American Aggregate Company of Kansas City, Mo., and the McNear Company of San Rafael.

The suit alleged infringement of patent claims of the Aggregate Company covering material used on the floors of the Bay Bridge. The defendant denied the allegations of the original suit and recently the plaintiffs filed voluntary dismissals of the action.

The Gravelite Company manufactures a light weight aggregate which measures up to all the requirements for use in Portland cement concrete, while at the same time effecting a saving of one-third in the weight of the concrete. The material itself weighs only half as much as ordinary sand and gravel.

In the case of the San Francisco-Oakland Bay Bridge where it is being used for paving the upper deck, it is effecting a saving of over 40 million pounds in dead weight, according to a recent statement of Charles H. Purcell, Chief Engineer.

WHITE PAINT ON BRICK

Common brick painted white is to be used more and more. Government architects have adopted it widely for postoffices. The more we consider the beauty, protection and economy from painting red brick structures, new or old, in white, or light colors, the more it is convincing as a dominant feature of spring campaigns. Common brick can be bought for $14 a thousand, satisfying all building requirements when protected with paint. Proper preparation of surface and right application of finish coats are necessary. Methods and materials must be studied by contractors, but competent work relieves common brick of its porous qualities and the well-done job holds for quite a number of years, cleanliness and beauty calling only for repainting at slight cost now and then. Painted in white or gray with marble trim, or in buff with limestone trim, these common brick post offices become a pride in any community. Inside, paint is laid directly on the brick, or on hollow tile in workrooms. Paint on such hard material is impervious and fireproof. Tile or brick laid up smoothly and painted gives a good-looking interior finish, eliminating the expense of plastering. —Condensed from *National Painters Magazine*.

The DIVERSIFIED ABILITY . . . .

of this organization of painting and decorating specialists, is evidenced in the widely differing technique utilized in . . . the fine decorating work in the recently completed Hotel Mark Hopkins Cocktail Lounge, W. E. Day, Architect . . . and the technical operations of washing and waterproofing the brick exterior, painting steel sash and trim, Hills Bros. great coffee plant, San Francisco.

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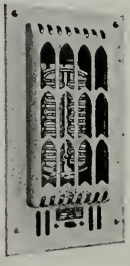

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WALL BOARD MOVES INTO SOCIETY

Just about the only unfortunate aspect of wall board is that it served its apprenticeship in basement and attic. Its wonderful achievements there having been photographed and exploited, it is hard to get into full evening dress. But a few feet away, only expert eyes now can distinguish between marble, tile or genuine wood veneer and their wall board substitutes. These are sure to spread rapidly in use on account of high cost of tile and marble, delays and waste on small units due to labor troubles, advantages of speedy construction, elimination of moisture. From their start as mere bases to be covered by plaster, paint or canvas, wall boards have been pushed by their makers into very attractive forms and places. Many new products are coming to market. They widen the architect's field vastly with no more expense—often at less. Metal trim in various forms adds protection, strength and attractiveness, helping with the joint problem. New tools cut grooves and bevels. Ornamentation brings its surprises. Pilasters impart stately dignity. Even the stencil comes in, but it finds wall board moving ahead on all fronts without its aid.—*Architecture.*

ARCHITECTS FAVOR WHITE LEAD

In a questionnaire to 3,600 architects in all parts of the country, 362 replies noted preferences for exterior paint on wood, pure white lead and oil for all coats getting 231; same for first two coats, 10; same for priming, 9; same for last two coats, 7; same or an alternate, 24; other paints, 81. Their fondness for white may be attributed to the way it lasts, the way it wears down and its price. Its durability is very important, meaning longer time between paintings. Wearing down smoothly, it does not need burning or scraping before repainting. Figuring white lead at 11 cents, a pound, linseed oil at $1 a gallon and Japan drier at 25 cents a pint, 100 pounds of white, with three gallons of oil and one pint of drier, making 6⅛ gallons, costs $14.25, or $2.33 a gallon. This is lower than other paints of inferior quality. White lead has proved itself so long and often that it is standard of comparison.

MODERN DECORATION IN OFFICES

Metropolitan business offices are striking a note of individuality and impressiveness in decoration. Leading decorators are employed to work out backgrounds suggesting the up-to-dateness of the occupant as well at maturity and reliability. Smart modern style expresses the first. Period effects and antique furnishings supply the rest. Walls are silvery gray in the sanctum of a woman consultant to manufacturers on women's viewpoints, a trim of light gray leaving the impression of greater space. Yellow draperies grace windows.

Deep brown linoleum on floor carries tile pattern, the baseboard painted to match.

A lawyer, high in a skyscraper, goes modern with white walls and special lighting fixtures, but brings back old Federalist days of Hamilton and Jefferson with mahogany desks and chairs. A designer's midtown office and studio shows tan walls above low shelves and cupboards painted darker, with great space for books and drawings, trays for artists' materials, desk top designed for raising to an easy slant for sketch work.

A prominent stylist suggests his artistry with soft yellow rough surfaced walls and chinese hangings painted on silk, deep chocolate - brown bookshelves opposite window, carpet of reddish brown figured geometrically, large desk of brown tropic wood and chairs in harmony.—*Painter and Decorator.*

NEW STOCKTON HOSPITAL UNITS

State architects are drawing plans for construction of $1,049,000 in buildings at the Stockton State Hospital and farm.

State Architect George B. McDougall is quoted as saying that plans will be completed in about four months and construction started within the next six months. It is estimated that it will take a year to complete the building program.

The new units will not only relieve the congestion at the local institution but will increase the patient capacity by at least 1000.

ELECTRIC APPLIANCES DISPLAY

A complete and permanent display of all General Electric home appliances may be seen at the new quarters of Electric Appliances, Inc., 2001 Van Ness Avenue, corner of Jackson Street, San Francisco. The firm moved to the new location on July 1. Appliances shown include General Electric refrigerators, ranges, dishwashers, ironers, washers, cleaners, commercial refrigeration and air conditioning and heating units.

NEW SAN JOSE DEPOT

The engineering department of the Southern Pacific Company has completed working drawings and bids have been taken for a brick passenger and freight depot to be built on The Alameda, San Jose. The cost is estimated at $100,000. Adjoining the depot, the American Railway Express will erect an office and storage building costing approximately $15,000.

A. CEDERBORG PASSES

Axel Cederborg, 53, building contractor, died at his residence at 1455 Excelsior Boulevard, Oakland, June 18.

Mr. Cederborg was a native of Sweden and for 20 years he served as secretary of the Swedish Mission Church. He built many of the best homes in the East Bay District.

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LOS ANGELES

Says Modernistic Home Never Will Be Popular

THE "modernistic" house probably never will become popular, in the opinion of William Orr Ludlow, fellow of the American Institute of Architects. Plain cement walls, flat roofs, and steel window sash, he points out, do not make a homelike house, according to the notion of the average home owner. The truth, Mr. Ludlow declares, is that people are incurably sentimental when it comes to choosing their personal belongings.

"Dealers say that automobiles are more often chosen because of their attractive lines than because of their good engines; most clothes are selected more because the wearer likes the looks of them than because they are comfortable; and so it comes about that when the prospective home owner chooses his home, he wants something that to him is beautiful and homelike. And very few can see anything either beautiful or homelike in a plain box-like looking structure that reminds him of a 'small factory'.

"The home owner is told that the modernistic style gives a more comfortable and economical house, and that its design is reasonable and logical, and that it is the 'coming thing'. But if the convenience and comfort and economy can be proved to be ahead of anything we now have, which may be open to some doubt, yet there remains something fundamentally wrong with the look of these homes, so that the style has probably little chance of more than temporary existence.

"And what is fundamentally wrong is the theory on which these houses are designed, which comes from supposing that people act according to reason, while the fact is that reason just brings us the facts and sentiment makes the decision. And the everlasting sentiment about the house we are go-

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ing to live in is that it must be 'homelike'.

"Architects are finding generally that although the occasional client can be educated to approve of 'modernistic' in theory and good for someone else, yet for himself, almost invariably, he wants something Colonial, farmhouse, or Cape Cod.

"Nickel plated hub caps, modelled radiator caps and painted lines do not add either to the comfort or economy of a car, and yet for his personal use the purchaser wants that kind of thing and always will; just so he wants a home that is something besides plain surfaces, steel sash, and flat roofs.

"The modernistic house is not likely to be an asset to its owner ten years from now because it is the exaggeration of a good idea, and so is likely to be considered by the next generation as just another one of those extreme styles that periodically come and go.

"Yet it is a step in the right direction, a getting away from a lot of senseless ornament and pretense in design, and it will do its part in bringing about the 'modern house', which, while free from such tradition as is unsuitable to our age, will really express in a simple, practical and economical way the sentiment for the beautiful and homelike home."

BUILDING OUTLOOK

Residential building awards continue to show encouraging improvement over the totals for 1934; the volume reported in the 37 eastern states during the initial half of June, amounting to $25,779,200, almost equaled the total reported for the full month of June 1934. "Coming on top of a substantial improvement in May the current gain assumes even greater importance," says L. Seth Schnitman, Chief Statistician, F. W. Dodge Corporation. The May residential contract total was about 6 per cent greater than in April and about 80 per cent ahead of the residential volume recorded for May, 1934.

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For the initial half of June, the F. W. Dodge Corporation reported non-residential building contracts of $22,292,200 as against $21,541,000 for the corresponding period of 1934; civil engineering projects undertaken during the first half of June totaled $18,466,800 as against $28,705,300 for the like period of last year. The figures for contracts covering all types of construction in the 37 eastern states amounted to $66,538,200 for the first half of June, an increase of about 5 per cent over the total for the like period of last year.

For the elapsed portion of 1935 through June 15, total construction contracts amounted to $615,038,300 as against $790,574,900 for the corresponding portion of 1934. Of the major branches of the industry, only residential building was able to show a cumulative contract volume in excess of that recorded for 1934.

For residential building, contracts since the beginning of 1935 in the 37 eastern states amounted to $184,119,900, a gain of almost 60 per cent over the total of only $118,464,800 for the period from January 1 through June 15, 1934.

GOOD KITCHENS

Twelve important requirements for good kitchens cannot be overlooked in architectural education and household engineering. Bright colors in small amounts help to enliven but must be used judiciously. Receiving space for groceries must be near entrance door. Mechanical refrigerator serves best in easy access to sink, preparation table, stove, breakfast alcove, dining-room. Counter for preparing vegetables, fruits and such messy stuff should not be too close to baking unit, salad-making being near refrigerator, both possibly at clear ends of a large counter with their utensils stored above or below work surface. Height of all counters, sink, stove, should be uniform and best suited for the one who does the work. Counter space is desirable next to stove, which

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should not be close to dining-room door. Serving dishes from dining-room must have ample receiving counters. Doors should be placed where most convenient for easy run of work. Equipment must be set where it promotes logical progression of service. Storage for dishes, supplies and appliances should be most available for maximum use. Compact lay-out is essential, but not too much for free action. A family kitchen should not be too small for more than one worker.—*Architectural Forum.*

ABSORBS WATER

Ordinary rough brick may absorb large quantities of water during a rain storm. A large structure might draw in a ton over a protracted rainy period. The dampness works through, making the building cold and hard to heat. This absorption might be stopped by two or three coats of high-grade paint. Pressed or ornate brick may be protected by transparent moisture-proof coatings on north or storm sides. Old brick buildings usually need no special treatment when painted. High-quality exterior paints hold for years—better when designed for brick and cement. If mortar between bricks is crumbling, it should be painted. Efflorescences of water-soluble salts on unpainted brick surfaces are mainly compounds of calcium, such as calcium sulphate, brought out by absorbed rain water. They should be removed by dry brushing or scrubbing. New brick buildings should dry a few months before painting. Priming coat on such walls should contain a fair amount of high-grade spar varnish as a sealing film. White is good for brick walls. It adds much to lighting of house rooms. Light tints, like cream and pearl gray, are pleasing. Brilliant splashes of green or Dutch blue on shutters offer good contrast. Roofs should not be forgotten, the metal kind needing protection from corrosion. —Condensed by Real Estate and Building Management Digest from *National Painters Magazine.*

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STORE ALTERATIONS

Experts say the building industry is about to enjoy unprecedented activity in store modernization. A news dispatch from New York says:

"Retail trade has led recovery. Now it has reached a point where it is able to give a hand to the lagging capital goods industry. Stores of the country will spend approximately $144,000,000 for moderization purposes in 1935. Average expenditures per store are estimated at 48 per cent more than in 1934.

A host of modernization activities are being undertaken, including store fronts, new floors, elevators and escalators, display and selling fixtures, maintenance equipment, lighting fixtures and decoration."

COMPETITION

Nearly 2,000 architects and designers, representing every state in the union, have entered the "Modernize Main Street" competition, sponsored by the Libbey-Owens - Ford Glass Company of Toledo. A total of $11,000 in cash prizes is being offered.

Conducted by the *Architectural Record,* with Kenneth A. Stowell, A.I.A. of New York City, as professional advisor, the plan was conceived by the Libbey-Owens-Ford company in the belief that it will arouse specific action among thousands of merchant property owners.

Prizes are offered in four divisions for modernization plans applicable to four types of buildings typical of Main street everywhere. They are the food store, the drug store, apparel shop and the automotive sales and service station.

BAXTER ACTIVE

West Coast Wood Preserving Company of Seattle is now represented in California by J. H. Baxter & Co., the change becoming effective July 1. Baxter Company have distributing offices in San Francisco and Los Angeles.

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The Architect & ENGINEER

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Birds eye view of San Francisco and Artist's Conception of the 1938 Exposition on Yerba Buena Shoals

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the Pacific Coast

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The Architect & Engineer

Notes and Comments

HAROLD L. ICKES, Public Works Administrator, has recently announced some of the more important regulations governing PWA's participation in the $4,000,000,000 Works program. The new rules are definitly in the interest of expedition. They provide that any time after acceptance by the applicant of an offer by the Government to aid in financing a PWA project, the applicant may request an advance payment on account of the grant of not exceeding 15 per cent of the previously approved estimated cost of the project.

This advance grant may be used for paying architectural, engineering, planning and legal fees, costs of surveys, borings and other preliminary investigations, cost of preparation of plans, specifications and other forms of proposed contract documents, the costs of advertisements for bids for contracts and the printing of bonds, but *not* in payment for the acquisition of lands, easements, or rights-of-way. The request for this advance grant must be accompanied by a signed certificate of purposes.

All of the bonds of the borrower will be taken and paid for by the Government at one time in cases where the offer is to purchase bonds in an aggregate principal amount of not more than $1,000,000. In all other cases, the bonds will be purchased by PWA in more than one installment and each installment, in so far as possible, shall be for an aggregate principal amount of not less than $1,000,000.

The rules provide for inspection of all work by PWA Inspection Division, reports on construction and progress and monthly reports to the Department of Labor covering the number of men at work, man-hours worked, the aggregate amount of payrolls and an itemized statement of expenditures for materials.

■ ■ ■

MUCH is being printed in the architectural press about the MENTOR and those who have not informed themselves, wonder what it is all about.. The Mentor, according to one in a position to discuss the subject, is a member of the architectural profession qualified by experience and training to guide a candidate for architectural practice during the period of his preparation or candidacy for a standard examination of the National Council of Architectural Registration Boards.

The Mentor acts as adviser to the candidate. Such an obligation can be properly discharged only by those members of the profession who have a genuine interest in assisting their younger fellows to a proper understanding of their high responsibilities as professional men. The discharge of this obligation should be neither burdensome nor technically difficult.

The Council calls upon the applicant to nominate a Mentor. In the choice of a Mentor the candidate may, if he wishes, turn for guidance to the committee on education of his local Chapter of the A. I. A., or request advice directly of the National Council.

If the architect nominated as Mentor is satisfactory to the Council, the latter communicates with him. Upon the architect's statement of his willingness to act as Mentor to the applicant, the Council so advises the candidate and his period of preparation begins.

From then on, the relationship between the Mentor and the candidate depends largely upon the personalities of these individuals, the responsibility resting upon the Mentor to guide his young friend in final preparation for practice. It is not essential that the candidate be in the office of his Mentor. The candidate may reside and be employed in a different city from that of his Mentor. But the relationship must be such as to permit the Mentor to fulfill his responsibilities to both the Council and the candidate.

Generally speaking, it has been assumed that the period of candidacy would be a minimum of three years. It is possible that in special cases and for special reasons this period may be less, but is more likely to be longer. This, however, is determined by the Council on the advice of the Mentor.

■ ■ ■

ABOUT six A. I. A. members have signified their intention of attending the 13th International Congress of Architects in Rome, September 22 to 28. The Permanent Committee of the Congress invites all American architects affiliated with the Institute to participate.

The delegation from the United States will be headed by Stephen F. Voorhees, President of the Institute, who has also been appointed as the official delegate of the Federal Housing Administration. In all probability the American architects attending will receive special credentials from the State Department, and steps will be taken to make their journey to Rome and return one of convenience and enjoyment. Any members who contemplate going should send their names to the Institute at The Octagon, where their names will be submitted to the Department of State, and also to the Secretary of the American Committee of the International Congress, George Oakley Totten, Jr., who is giving personal attention to the arrangements for the American delegates.

■ ■ ■

IN 1934 THE ARCHITECT AND ENGINEER published a series of interesting articles on Maya architecture by Robert B. Stacy-Judd of Los Angeles. It seems that some authorities differ with Mr Stacy-Judd in his opinions. In an early issue of this magazine we shall publish a paper by Gerhardt Kramer, Associate in Architecture, at the Tulane University of Louisiana, on "Maya Architecture in Modern Design." Referring to the five articles by Mr. Stacy-Judd on the subject, Professor Kramer writes:

"I do not agree with the opinions of this author. I feel that the architectural profession should be interested in having the correct and archaeological side of this question presented."

Professor Kramer's paper will be generously illustrated.

■ ■ ■

THE American Institute of Architects has again paid tribute to the indefatigable work of Mr. Edwin Bergstrom of Los Angeles, by re-electing him Treasurer for the fifth consecutive year. Mr. Bergstrom's services during the most trying period of the Institute's existence, have been most efficient and helpful and his re-election comes as a well deserved reward. Another Pacific Coast architect honored by the Institute at its recent convention is William H. Crowell of Portland, Oregon, chosen Regional Director for three years.

■ ■ ■

AFTER discussing briefly the proceedings of the last Institute Convention in Milwaukee, William Stanley Parker, in the Architectural Record, enumerates the following which he considers outstanding features of the Institute's 1935-36 program:

"With the normal continuance of its regular activities as expressed in its standing committees, there seem to me to be three major demands upon the Institute in its service of the profession during the coming months:

(1) Develop the utmost possible re-

[Please turn to Page 80]

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The Architect & ENGINEER

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A. I. A. Honor Award

VETERANS MEMORIAL BUILDING, HAYWARD, CALIFORNIA

HENRY H. MEYERS, ARCHITECT

Geo. R. Klinkhardt and Mildred S. Meyers, Associates.

The Architect & ENGINEER

August, 1935

Memorials

by Mildred S. Meyers

Alameda County, California, Builds Ten Monumental Structures as Tribute to World War Veterans

UNDER the provisions of a state law enacted less than ten years ago, counties of the State of California are permitted to include in their tax rate a certain portion for the construction and maintenance of Memorial Buildings, dedicated to the memory of their war veterans.

Since 1927, the county of Alameda has gradually been erecting in the various communities throughout the county, ten such Memorials, which have been designed as club buildings or community centers. These structures are located in Oakland, Alameda, Berkeley, Everyville, Albany, San Leandro, Hayward, Niles, Pleasanton and Livermore. They range in cost, according to the demands and needs of the community, from $40,000 to $250,000.

DETAIL OF LOBBY, VETERANS' MEMORIAL BUILDING, SAN LEANDRO
Henry H. Meyers, Architect

A further provision of this law requires the site to be furnished by the community in which the building is to be erected. In some cases, land was furnished by the city or

town itself. In others, the veterans' organization supplied this requirement. Some of the sites provided are ideal, others leave much to be desired. Certain of the communities, not realizing the importance of the building in the civic life of the district until too late, skimped on the size, selection and location of the property in order to hold down costs.

In the case of the Oakland building, an ideal setting was provided at the head of Lake Merritt. The building was placed in a public park of many years growth and care was taken not to destroy any of the trees and shrubbery.

A similar setting was offered in Albany, where the community was fortunate in having a park ample in size and perfect in character for its building.

The Memorial at Niles is on the site of an old pear orchard in the heart of an early Spanish land grant, the "Rancho de la Alameda". Streets were cut through and opened after the building was erected.

VETERANS MEMORIAL BUILDING, OAKLAND, CALIFORNIA
Henry H. Meyers, Architect
George R. Klinkhardt and Mildred S. Meyers, Associate Architects

No serious foundation difficulties were encountered in any of the ten sites selected. However, at Oakland, a slough extending from Lake Merritt made it necessary to use piling. At Emeryville and Albany the surface strata is of adobe. Good foundations were secured at 5 to 8 foot depths.

The buildings are planned to take care of the various activities of the veterans' organizations. In each there has been provided a generous auditorium with fully equipped stage and dressing rooms, lobbies

and vestibules, also one or more lodge rooms as required, with the necessary accessories, men's and women's club rooms, kitchens, and in some instances special banquet, card and billiard rooms.

The Oakland building, the largest of the ten, contains the business offices and special committee rooms of the veterans' organizations, as well as the general community rooms mentioned. It has become one of the most widely used of Oakland's civic buildings.

In all cases, the Memorials have been designed in styles to suit the surroundings. Where they are located in residence sections, a less formal style was selected. For those in business districts, the monumental was considered more appropriate. A modernized Classic was chosen for the buildings at Emeryville, San Leandro and Hayward.

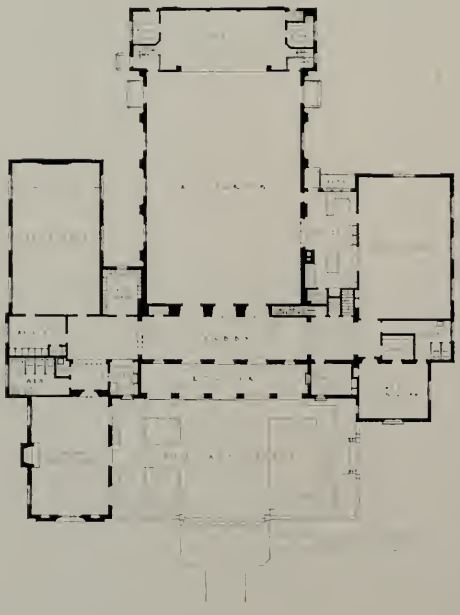
It is of interest here to note that the Hayward building won an Honor Award in the recent Biennial Exhibition of the American Institute of Architects held in San Francisco. Unfortunately, these Memorials were classed as "monuments" in the exhibition, while in reality they are community centers. Only a few are formal enough in character to measure up to monument requirements.

VETERANS MEMORIAL BUILDING, ALAMEDA, CALIFORNIA
Henry H. Meyers, Architect
George R. Klinkhardt and Mildred S. Meyers, Associate Architects

Regardless of style, military details have been introduced into the design of all the Memorials to emphasize the purpose of the buildings.

Because of the character of the surroundings and the history of the district, the

VETERANS MEMORIAL BUILDING, ALBANY, CALIFORNIA
Henry H. Meyers, Architect
George R. Klinkhardt and Mildred S. Meyers, Associate Architects



building at Niles was designed and planned in the California Spanish style. As a result, when the building was completed, three other communities requested that their buildings be of similar architecture. The architects appreciated this compliment, but were immediately faced with the problem of avoiding similarity in architectural design.

The exterior walls of all buildings, with the exception of that at Niles, are of reinforced concrete. Hollow tile was selected here because of its location near the center of the tile industry of Alameda County. The interior construction of all buildings is Class C or wood, except for the Oakland building, where the second floor is of reinforced concrete, and the partitions of hollow metal.

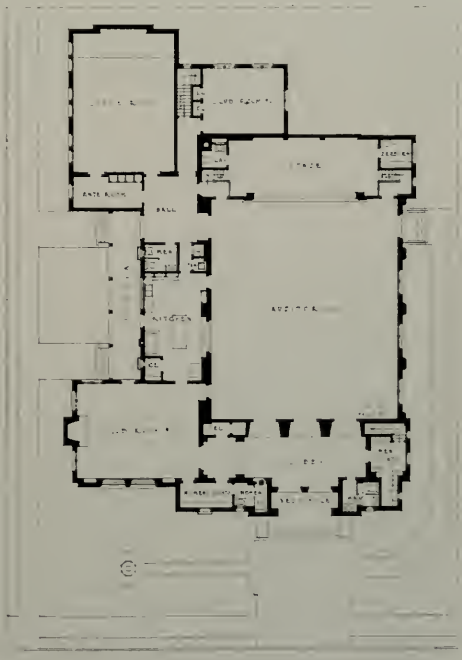
With the exception of the San Leandro building, the exteriors of all Memorials

VETERANS MEMORIAL BUILDING, PLEASANTON, CALIFORNIA
Henry H. Meyers, Architect
George R. Klinkhardt and Mildred S. Meyers, Associate Architects

have been treated with cement stucco finish. The surface treatment of this stucco varies with the architectural style of the building, a crude uneven finish being used on those of California Spanish design, and a dash or trowel sand finish on the remaining.

The building at San Leandro varies from the others as to this surface treatment. Here the form boards were of selected character with rebatted ship lap joints, and no butt joints. All angles have mitered corners. All lumber was sized and applied with the rough sawn surface in contact with the concrete.

Unsightly overnight joints, so common in ordinary concrete, were avoided by a careful consideration of a day's pour. Vertical partitions were set up in the walls at selected locations so as not to be visible at completion.



MEN'S CLUB ROOM, VETERANS MEMORIAL BUILDING, ALBANY
Henry H. Meyers, Architect
George R. Klinkhardt and Mildred S. Meyers, Associate Architects

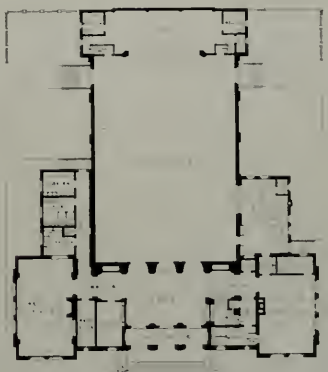
VETERANS MEMORIAL BUILDING, BERKELEY, CALIFORNIA
Henry H. Meyers, Architect
George R. Klinkhardt and Mildred S. Meyers, Associate Architects

LODGE ROOM, VETERANS MEMORIAL BUILDING, HAYWARD
Henry H. Meyers, Architect
George R. Klinkhardt and Mildred S. Meyers, Associate Architects

When it was not possible to finish a day's pour at a floor level or roof line, an intermediate joint was placed to coincide with a form board joint and stripped 2" deep to form a protected rebate which the succeeding pour would fill and form a water tight joint.

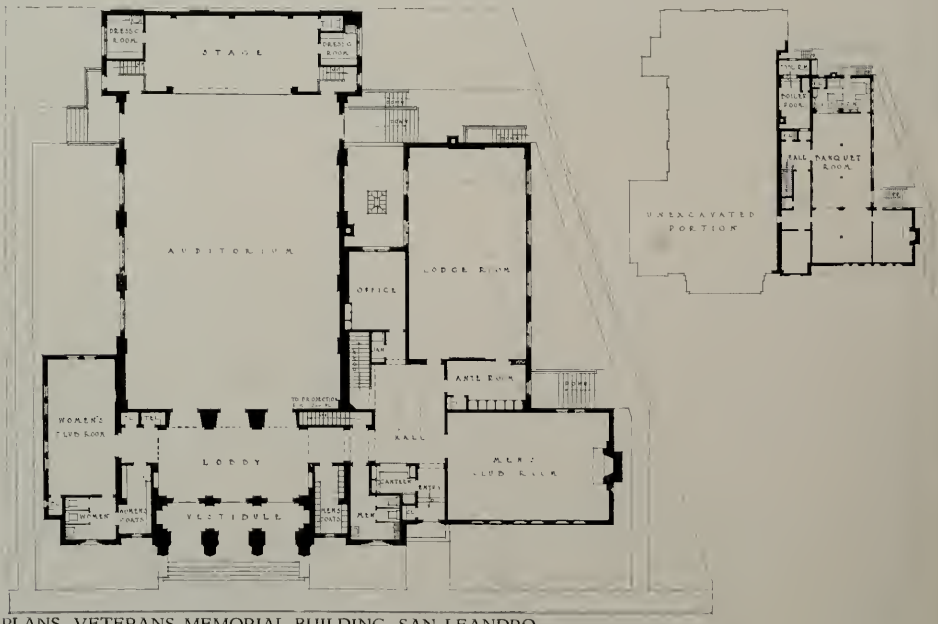
While this method saved the cost of stucco, there was no ultimate saving as considerable expense was incurred in the care given to the form work. This, however, was well repaid by the results obtained.

On completion, these walls were brushed down to remove any loose sand and then a color coating applied in which was incorporated a waterproofing compound to seal the concrete surface.



PLAN, VETERANS MEMORIAL BUILDING, HAYWARD
Henry H. Meyers, Architect

VETERANS MEMORIAL BUILDING, SAN LEANDRO, CALIFORNIA
Henry H. Meyers, Architect
George R. Klinkhardt and Mildred S. Meyers, Associate Architects



PLANS, VETERANS MEMORIAL BUILDING, SAN LEANDRO
Henry H. Meyers, Architect
George R. Klinkhardt and Mildred S. Meyers, Associate Architects

AUDITORIUM, VETERANS MEMORIAL BUILDING, SAN LEANDRO
Henry H. Meyers, Architect
George R. Klinkhardt and Mildred S. Meyers, Associate Architects

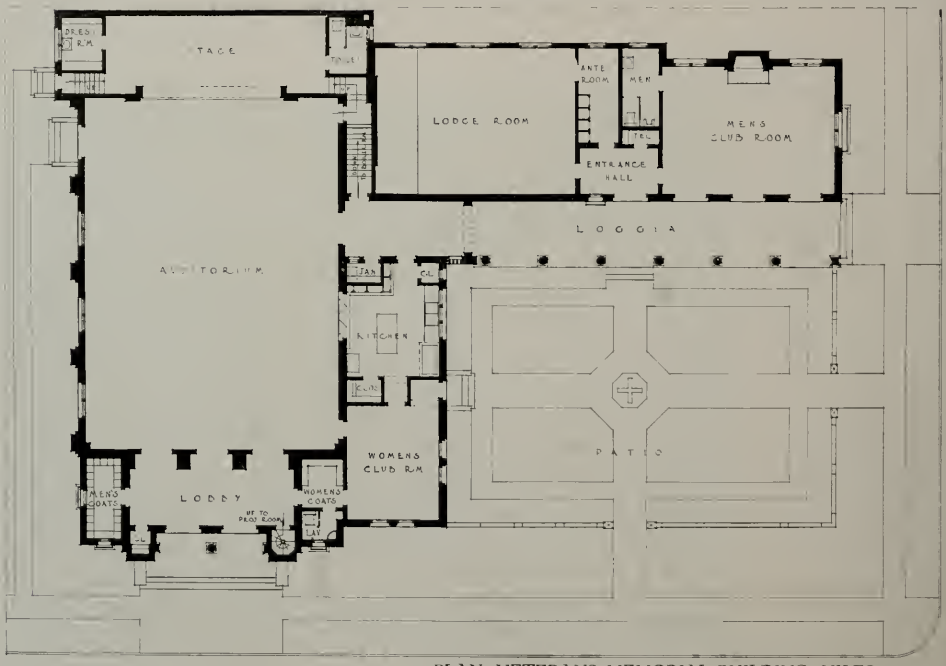
surface and structural reinforcement for the wall itself.

The interior of the memorials have been designed to carry out the style and character of the exteriors. Special color and decorative treatments were studied in this connection for the main rooms in each individual structure. Color studies of these various rooms, to scale, were made by a skilled designer under the

Ornamental panels at San Leandro were constructed with plaster waste moulds. These however, are not as true an example of this type of construction as the panel over the front entrance of the Pleasanton building, which is of considerable area as will be noticed from the photograph. This required skill in handling in order to give a result of perfect workmanship on the

MEN'S CLUB ROOM, VETERANS MEMORIAL BUILDING, SAN LEANDRO
Henry H. Meyers, Architect
George R. Klinkhardt and Mildred S. Meyers, Associate Architects

VETERANS MEMORIAL BUILDING, NILES, CALIFORNIA
Henry H. Meyers, Architect
George R. Klinkhardt and Mildred S. Meyers, Associate Architects



PLAN, VETERANS MEMORIAL BUILDING, NILES
Henry H. Meyers, Architect
George R. Klinkhardt and Mildred S. Meyers, Associate Architects

VETERANS MEMORIAL BUILDING, LIVERMORE, CALIFORNIA
Henry H. Meyers, Architect
George R. Klinkhardt and Mildred S. Meyers, Associate Architects

supervision of the architects. These studies were used later by the painters and decorators as a basis for mixing and making samples for final colors at the building. This procedure required extra time and effort but the results were so satisfactory that in the end, time was undoubtedly saved in fewer delays at the job.

In the California Spanish buildings, structural members of roof trusses were left exposed in many instances. These were treated with stencil designs inspired from old Spanish ceilings. Walls in general were finished in an uneven surface to imitate the crude workmanship of the old buildings. These were kept simple in color with a glaze finish to tone in with the woodwork.

Where the modern treatment was adopted, a greater opportunity was afforded as to originality and freedom in design and color. One of the most successful rooms in this respect is the auditorium in the San Leandro building. Here, the walls have been painted a light clear canary yellow, while the woodwork has been stained a rich dark green brown. The sloping and stepped surfaces of the ceiling panels were especially prepared to take a covering of aluminum leaf. Portions of this ceiling were slightly glazed to soften the extreme brilliance of the metal. Finally, to accentuate the direction of the ceiling and to eliminate the monotony that a great expanse of aluminum might create, a rich stencil pattern was introduced. This metal ceiling forms a lively note in the room and is particularly interesting in the manner in which it picks up colors of adjacent surfaces and materials. This color reflection is again noticeable in

VETERANS MEMORIAL BUILDING, EMERYVILLE, CALIFORNIA
Henry H. Meyers, Architect
Geo. R. Klinkhardt and Mildred S. Meyers, Associate Architects

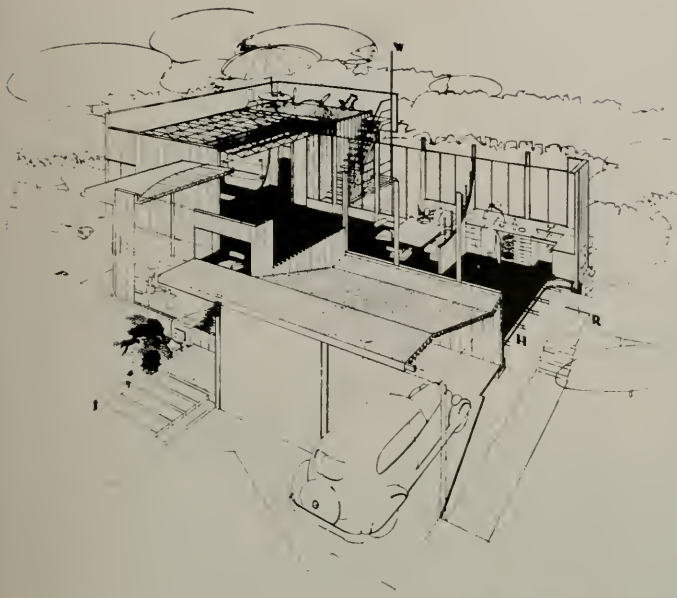
the lobby of this same building. Here however, ribbed ceiling panels of aluminum leaf reflect the red-brown of the tile floor.

Decorative tile was used quite extensively in the various Memorials. In most cases the tiles were designed in the architect's office for the particular building. This was found necessary in order to harmonize pattern and color with other materials in the building.

Interesting features of all the Memorials, and one so often neglected, are the lighting fixtures manufactured from designs and details by the architects. Again old Spanish designs were the inspiration for the fixtures in the buildings of early California-Spanish character. In the modern buildings, where more opportunity for imagination and originality was offered, an effort was made at all times to keep the fixtures simple and in harmony with the architectural treatment.

With one or two exceptions in the earlier buildings the architects were called upon to design and select the draperies for the various main rooms. This was worked out in connection with the color studies of the individual rooms. In this manner a unified and harmonious whole was planned.

It is gratifying to note how jealously proud each community is of its own building. It is also interesting to note the popularity of these buildings, not only for veterans' activities but for public functions. In a much larger degree, especially in the smaller communities, these Memorials are taking the place of the "old town hall" and are being made an integral part of the community life.



RESIDENCE OF
PROF. WM. BEARD,
ALTADENA, CALIFORNIA
Richard J. Neutra, Architect
Gregory Ain, Associate

Four-room one-story house of earthquake and fire-proof steel construction. The roof is removed in the drawing to reveal the interior. (F) Front entrance leading to large living room with view-windows and sliding doors to rear garden and westerly patio (P). (R) Rear entrance to service porch and kitchen with breakfast nook. Stairway leads up to a roof terrace prepared for a future second story addition of two bedrooms and bath.

Moderne

● *Richard J. Neutra Again Receives National Recognition for his Work in Domestic Architecture*

MORE of Richard J. Neutra's work in modern design is illustrated this month. All of the three homes pictured have lately been awarded prizes in the Better Homes in America competition. The jury has judged them as outstanding examples in the development of modern home design.

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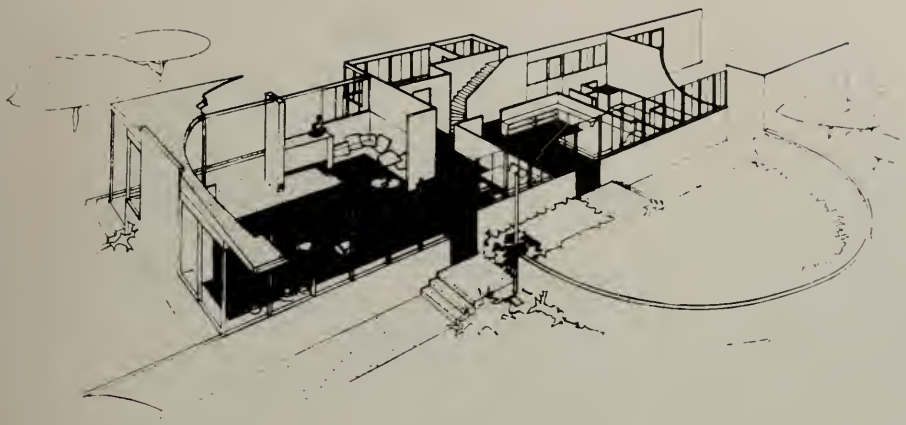
Richard J. Neutra, Architect; Gregory Ain, Collaborator
Living quarters looking toward aluminum fireplace.

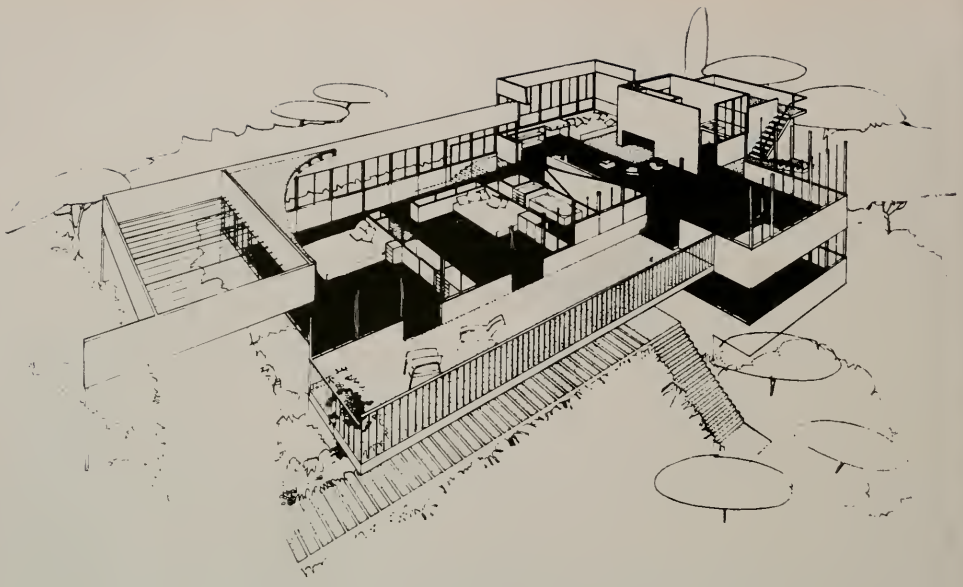
According to Mr. Neutra all three prize winning homes have been very carefully planned from the angle of labor saving in the household and of easy cleanability. The built-in furniture, such as day and night couches, drawer sets, shelving and desks, have been proven to save considerable floor area and therefore cost, but in addition to this, they keep much of the liveable area free from obstruction and thus give additional comfort. All these built-in features are a carefully contemplated portion of the primary planning and of the general contract. They intimately relate to the layout of doors, windows, impervious wainscots and fixtures, so that a complete integration of design, appearance and function is accomplished.

"Great attention is given to the most favorable proportion of true 'living area' and 'traffic area', in each room, the latter being minimized as far as possible," Mr. Neutra explained. "In spite of the apparently large window area the amount of direct radiation permitted to enter the interior of each room was fully discussed in advance with the cli-



ARCHITECT'S DRAWING, FARMLET HOUSE OF MR. AND MRS. N. KOBLICK, NEAR SAN FRANCISCO
Richard J. Neutra, Architect; W. I. Garren, Supervising Architect
A five-room house of one story, shown without roof to reveal interior.

FARMLET HOUSE OF MR. AND MRS. N. KOBLICK, NEAR SAN FRANCISCO
Richard J. Neutra, Architect; W. I. Garren, Supervising Architect



ARCHITECT'S DRAWING, RESIDENCE OF MRS. ERNEST MOSK, HOLLYWOODLAND, CALIFORNIA
Richard J. Neutra, Architect

This is a five-room house on a hillside. Living room, kitchen, two bedrooms and bathroom are on the upper floor; a private apartment with separate garden entrance on the lower floor. The drawing shows the roof removed, disclosing the interior arrangement of the house.

RESIDENCE OF MRS. ERNEST MOSK, HOLLYWOODLAND, CALIFORNIA
Richard J. Neutra, Architect

SAN FRANCISCO
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ent. Radiation is controlled by suitable roof projections and other overhangs, and also by curtains which move in a continuous curtain track. There is always an abundance of diffused daylight introduced; however, the direct radiation is restricted."

The home of Professor William Beard in Altadena, and which received the gold medal award, is constructed of cellular elements approximating a series of vertical flues side by side (male and female joints), with exterior air intakes and automatically self-cooling exterior walls; the sunrays themselves—as far as not reflected by the aluminum coating, transmute their energy into air convection in the wall interior and thus cool the house.

The aluminum finish on the exterior appears extremely neat and dignified, much less blinding than light stucco. The interior shell of the walls is of caloriferic insulation material and keeps conduction of heat in both ways at a minimum.

Describing the heat control of the house, Mr. Neutra says: "The entire floor area is made a low temperature radiating heating panel. It consists of a diatom cement composition slab rested on an open steel substructure, which makes a 6-inch subfloor space a continuous subfloor plenum chamber into which hot air, from the unit furnace, is pressed electrically and distributes to rise into the hollow space of the double shell walls. This radiating heat, emanating from an extensive area, gives comfort of warmth, however low the air temperature may be. In fact, like similar low temperature radiation tried in the ancient Roman Baths, and recently in England and Holland, permits the opening of windows and sliding doors on the opposite side of wind attack, without losing the proper reception of warmth. The 'interior climate' here has the same moisture content as outside and resembles less tropical conditions (warm air and much moisture) than the wholesome conditions of a Swiss altitude resort where human beings very lightly dressed enjoy sun radiation in quiet but cool air and feel comfortable."

PRIZE WINNER IN LOW COST HOUSE COMPETITION

FOR his design of a home aimed to meet the needs of 75 per cent of the nation's population, J. Andre Fouilhoux of 40 West 40th Street has been awarded first prize in a low cost house competition of the New York Chapter of the American Institute of Architects.

Second prize went to John Theodore Haneman and third prize to Frederick G. Frost. Another entry by Mr. Fouilhoux took fourth place. Forty-one designs from thirty-two architects were submitted in the effort to solve the problem of providing "decent, adequate houses for families in the lower income groups".

The contest called for a dwelling to be occupied by a family of two adults and two children. As to cost, it was pointed out to the contestants that families with incomes ranging from $1,800 to $2,500 are the most numerous in this country. This group, it was stated, can afford to buy houses, including land, costing from $3,000 to $5,000.

"The most needed solution is for houses below the $5,000 limit," said a statement of the committee, of which Oliver Reagan is chairman. "There is no inherent problem confronting the architect in the design and construction of six-room houses costing $5,000 or more. Architects cannot hope to solve the problem of individual houses of proper standards for the lowest income groups; namely, for families having a combined annual income of $1,200, or less.

"This class, estimated by the National Housing Administration as representing one-third of the population of the United

States, must receive Federal or other subsidy; and it is probable that much of the housing for this group will be multi-family or row houses.

"Under the National Housing Act the financing of houses of many of the lower income groups is made possible in a way that has not hitherto been available. There still remains, however, the technical problem of how to procure buildings which will properly fill the family needs at a cost which can be met.

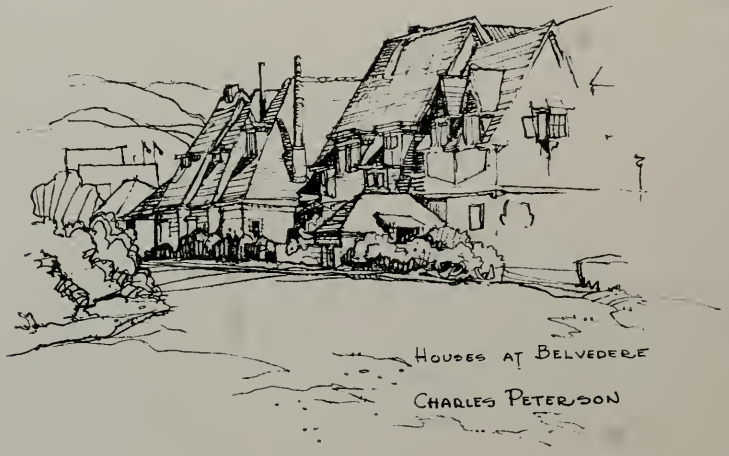
"The competition sought designs, including construction methods and materials, which will represent a real contribution to solving the problem of how to provide the much needed, proper, low-cost housing. It also sought to determine the exact cost in different localities of such a house of fixed accommodations and reasonable standards, under present conditions of architectural practice.

Such costs will vary greatly in different localities, and the information thus gained will be of vital importance to the profession and to prospective house builders. The competition was essentially a matter of study and research."

Mr. Fouilhoux was born in Paris, September 27, 1879. He received the degrees of B.A.,B.S., and B.Ph. from the Sorbonne in 1897, and was graduated from the Ecole Central des Arts et Manufacturers in Paris as civil and mechanical engineer in 1901.

He was a member of the firm of Whitehouse and Fouilhoux of Portland, Ore., from 1908 to 1917. He served as Major in the United States Army from 1917 to 1919. In 1910-1920 he was with Albert Kahn of Detroit.

Mr. Fouilhoux became associated with the late Raymond M. Hood in 1920. He was a member of the firm of Howells and Hood, architects of the Tribune Tower, Chicago, and the News Building, New York City; and later of Hood and Fouilhoux, architects of the McGraw-Hill Building and the Beaux Arts Apartments in New York; and the Scranton Masonic Temple, Scranton, Pa. Hood and Fouilhoux was one of the three architectural firms which designed Rockefeller Center. Mr. Fouilhoux is at present architect of the MGM Studios of the Chicago Tribune.



Noise

Modern Construction Needs a Cure for Sound Vibrations, According to T. P. Bennett, Architect, of London, England

TO appreciate the conditions of the problem which we are studying it is necessary to visualize the circumstance which surround buildings at the present time, the conditions under which we live, and the constructional materials in common use. All these circumstances have very direct bearing, not only upon the amount of noise which exists, but upon the extent to which people using buildings and living in houses, are uncomfortably conscious of this noise; in fact, it may not be too much to say that consciousness of noise is very much more important than noise itself.

For example, on first entering a factory conducting noisy operations, the ear is unable to receive the sound of conversation conducted in ordinary tones, or even at the limits of vocal power, but after remaining in the conditions of noise of the factory for half an hour, or possibly half a day, it is quite possible to converse easily and comfortably in ordinary tones. In other words, the ear becomes attuned to the general noise level of its surroundings, and is then able to shut out those noises and to receive other and unusual sounds without any particular difficulty or discomfort.

A factor of the greatest importance is the advance made in scientific knowledge, which is reflected in the daily press, and brought home to the ordinary intelligence, carrying with it a subconscious and often active feeling that objectionable incidents in life, whatever their character, are curable. There can be no doubt that, while the human system tends to regard incurable ills with apathy, the curable ills are a subject of active annoyances, and the mere fact that noise is assumed to be curable, is sufficient cause for the ordinary man to demand the protection of that cure on the part of the scientist and builder who are providing him with his immediate surroundings.

Examining the buildings of the 19th and previous centuries, and the buildings which are being constructed to contemporary designs, it is, of course, immediately evident that the salient indication of the advance of science in building construction from the times of the Assyrians has been reduction in the amount of space occupied by actual constructional members. The crowded Pillar Hall, the immensely thick walls of the Egyptian Temple, give way to the slender columns and wide narrow buttresses of the perpendicular period.

They in turn have been succeeded by the still thinner walls and steel columns made possible by the reinforced construction.

The main character of all older types of buildings is the possession of a very high amount of inertia. They have thick walls, thick floors, soft plaster of considerable thickness. They often have wood panelling separated from the walls of the room with open spaces; in many cases the rooms or apartments were furnished with generous use of hangings, carpets and other kinds of soft material, the whole of which tended to reduce such noise as entered these rooms and apartments to a minimum. Added to this, it was not uncommon to find heavy pugging in the floors of old buildings, and also, of course, to discover that careful examination of the method of construction indicates enumerable points upon which materials, which were superimposed upon each other, differ:—

(a) In sound conveying qualities.

(b) Are very substantially disconnected at their junction. Nor are certain other factors without considerable importance.

In houses the rooms were large as well as being heavily furnished, and in large houses sound rarely passed outside the actual partment. Rooms were very lofty, relatively big masses of material were present, windows were kept almost permanently closed, and therefore sound had the smallest possible chance of entering or leaving.

Contrasted with these old methods of building, it is necessary to examine in considerable detail the methods of modern construction to see precisely where the weakness of these materials is to be found so far as noise resistance is concerned.

The elimination of the thick wall, and its replacement by the thin wall and thinner partitions, is the first and one of the most important alterations of construction which have allowed noises to enter buildings with facility.

It is useless to hope for or to aim at the return of the thick wall, because it is the antithesis of the progress of constructional material.

If anything happens to walls in building construction, there can be very little doubt that they will become thinner than the dimensions with which we are familiar. In fact it is not improbable that in our own lifetime some type of material will be produced which is weather resisting, good to look at, and reasonably permanent, very thin, and, we hope, resistant of noise, which can be manufactured in sheets of appreciable size, and be erected on the site with the minimum amount of site labor, because the whole progress of building construction tends towards the manufacture of buildings in workshops and the elimination of building on site. Therefore, the thin wall and the thin partition have come to stay.

The thinness of walls and partitions is not their only bad noise conveying factor. The partition has now reached a point where it is sufficiently thin compared with its length and breadth to vibrate appreciably.

Noise is vibration, and when a certain intensity is reached, the partition conveys sound from one room to another with added intensity so that the vibrating membrane of the building is in itself a potential source of

difficulty, and this has to be borne in mind in dealing with possible preventatives.

In steel frame buildings, the supports consist of a continuous metal frame carried on stanchions and beams, and this portion of the building constructed of hard metal in itself resonant and noise conveying, adds to the noise qualities of the wall, a continuity which forms an easy passage for sound from one end of the building to the other, and the first and vitally important noise conveying factor in steel frame building is, therefore, the steel frame.

For purposes of strength it must be rigid, the seatings must be able to carry the superimposed load placed upon them, and by riveting and bolting it may even be placed under a certain amount of tension which reacts to noise much the same as the tuning fork acts when struck.

Reinforced concrete exaggerates this continuity since every portion of the building is joined to the other, and in practically all cases the enclosing membrane or wall is part of the structure. Fortunately, the reinforced concrete building has an advantage to off-set against this excessive homogeneity, in that the whole building acts together to a certain extent, and creates a large inert mass which is noise resisting.

Similarly, the floors of buildings have been increasingly reduced in substance and thickness, and generally consist of thin layers of plaster, ferro-concrete, terra cotta and air spaces.

The total mass of inertia of the whole of this construction is extraordinarily low, and although the sound passes through a number of materials of different density and or through one or more air spaces, it is by no means eliminated when it reaches the far side. Under certain conditions it is quite possible for such floors to amplify the sound which strikes them above or below.

Apart from the structural material of the building, the whole trend of recent developments and ideas in finishings has been towards highly efficient, hygienic labor reducing surfaces, and these desirable qualities in the finishing of our buildings unfortunately have one common defect, i.e., that they are all sound producing, or sound prolonging surfaces of quite unmistakable quality.

The walls of most buildings to-day are coated with hard plaster, finished with paint, with ply wood set solid upon plaster backing, with marble or terrazzo or some similar uncompromising hygienic surface.

The floors, which are advocated by all the most advanced architects, are jointless flooring, polished wood, marble, terrazzo, granolithic, and many others; almost all possess beautiful surfaces, thin hard joints or no joints, capable of being polished, looking extremely business-like and efficient, but all producing noise. There are only two or three materials in common use which have some of the qualities of modernity which have been indicated above and which are sound reducing .The four leading materials of this character are rubber, cork, linoleum and carpet; fortunately these materials hold, and will continue to hold, a very large place in the finishings of buildings.

Having dealt with the outline of materials which were used in old and are used in new buildings, it is now important to examine the types of noise which are created, and to discover the source from which these noises come in order that we may know the type of enemy we have to fight

Old country houses were usually isolated; were surrounded by open space. Country roads which reached them were practically devoid of traffic, in many cases had very light surfaces; the vehicles which moved upon them moved relatively slowly and with the minimum of noise, so that the noises in the country were few and far between, except, of course, the noises of birds

and beasts, all of which were pleasant, soft, slow and attractive.

The progress of modern transport, scientific invention, building equipment, and the facilities which speed up work, have all involved movement both inside and outside the house. The use of mechanical plant, and the production of sounds by individual units, have collectively built up a huge army of noises, which the modern designer is asked to attack. The noises range over a wide scale of pitch and intensity, and this aspect of the matter is of considerable importance, because research into the sound resisting qualities of various types of material indicates that most materials resist sounds of different musical pitch to different extents, and it does not follow, therefore, that because the material will very largely eliminate a low rumble of traffic that it will have the same effect upon the high-pitched whistle of a train.

THIS REMARKABLE PHOTOGRAPH SHOWS THE SHADOWS OF THE MARIN TOWER, GOLDEN GATE BRIDGE, LOOKING DOWN FROM AN ELEVATION OF 750 FEET. THE BUILDING ON THE RIGHT, AT THE BASE OF THE TOWER, IS OLD LIME POINT LIGHTHOUSE.

Arches

by Homer M. Hadley

● *Reinforced Concrete Romanesque Bridge at the San Diego Fair a Monument to Architectural and Engineering Skill*

THE new postage stamps commemorative of the San Diego Exposition present a birdseye view of the grounds. Plainly to be recognized are the familiar tower of the Palace of the Science of Man built twenty years ago by Bertram Goodhue, the large modernistic Ford Building and the noble arches of the Cabrillo Bridge. All of these are identifying and characteristic features of the Exposition. They stand distinctive, a tower different from other towers, a building different from other buildings, a bridge different fro mother bridges. The Ford Building is new; the tower and bridge were features of the Panama California International Exposition of 1915. It is the bridge which here concerns us.

CLOSE-UP OF CABRILLO BRIDGE. BALBOA PARK, SAN DIEGO

The Cabrillo Bridge, or Puente Espagnol, crosses the wide deep ravine that extends through Balboa Park, where the exposition is being held. It is nearly a thousand feet in overall length (948-9½") and from bottom of lowest footing to roadway level it rises one hundred thirty feet. Seven Roman arches of twenty-eight foot intrados radius span between the wide-faced lofty piers and the massive end abutments. A twenty-four foot roadway, two seven foot ten inch sidewalks, together with their handrails, give an extreme overall breadth of structure of forty-one feet eight inches. The great two-shafted piers are forty-one feet four inches in breadth from outer face to outer face, and are twelve feet wide. The pier

CABRILLO BRIDGE, BALBOA PARK, SAN DIEGO

shafts are twelve feet by thirteen feet eight inches.

This bridge is a monument to architectural skill and study. True, the Roman arch is an old form with which much experience has been had. How easy it would have been, however, for an inexperienced designer to have gotten his piers too wide or too narrow, his crown thickness too slight or too great. It is the satisfying nicety and rightness of the proportions that were given to the masses here that makes Cabrillo Bridge the fine accomplishment that it is. No glib "progress" can improve it. It is right with the architectural rightness of a living tree or of a mountain peak as Nature fashioned them.

And it is notable also for the complete absence of decoration. The six inch handrail coping, offsetting two inches from the face of arch and pier, accentuates the separation of bridge from sky. The tiny light standards upon the handrail above the massive piers give pause and check to the roaming eye. They are manifestly possessed of sufficient structural ability to support the lights they carry, and they are division points along the terminal line. Having no other functions to perform they make pretense of none additional, and rightly maintain the modest role that is theirs. Apart from handrail coping and light standards there is nothing to divert the attention from the forms and proportions of the main structural masses. There are no "treatments", no adornments, no special surface textures.

Why should there be "treatments" and decorations when such dignity and fine appearance has been achieved with skillful handling of form alone? As well attempt to decorate El Capitan. The decorations were so patently trivial and out of keeping with that which was decorated, that it would seem a most mistaken thing to attempt any.

We can be sure, however, that these major forms and proportions of Cabrillo Bridge were considered long and thoughtfully before they were adopted. They were too good to be the outcome of mere casual whim and chance. Many studies were made and were carefully and critically compared. That there was sympathy and wise judgment and understanding, is manifested in the decisions which we see fulfilled in the completed bridge.

Incidentally the bridge illustrates concrete in a most characteristic form. The arch merging into its supporting pier or pier into arch—however it be regarded—without break or offset, without corbel or capital, is significant of the unity of structure which concrete possesses. Pier and arch can be made one. It is therefore not only appropriate to the Roman arch, but also to concrete as the structural material employed that the designer planned and fashioned as he did.

The size and scale of parts in this great bridge, the massive looking piers, the breadth of arches, may suggest a lavish use of materials out of keeping with depression-stricken purses. Rather, however, do they offer examples of how depression is to be met and circumvented. The entire structure is cellular, hollow. The material is disposed efficiently, and although some sections are thin, there is ample strength in the mutual support the component parts give one another and the whole. The soffit slabs of the arches are six inches thick; the outer faces of the pier shafts are fifteen inches thick, but the three remaining sides of each shaft are only six inches thick. At the corners where these six inch sides intersect, are interior column sections three feet two inches square, integral with the walls. A six inch by six inch rabbet is formed in the outer corner of these columns. Interior diaphragms six inches thick stiffen the arches, while interior horizontal dia-

SOUTH VIEW OF CABRILLO BRIDGE, BALBOA PARK, SAN DIEGO

phragms eight inches thick and about fifteen feet on centers, stiffen and strengthen the pier shafts. When one thinks of what would have resulted had the same quantity of material been conventionally disposed in solid sections conventionally braced, there can be only a feeling of profound gratitude over this avoidance of what might have been.

A joint is formed at the crown of each arch. The arch webs are keyed for transmitting shear—otherwise the separation is complete. Consequently the structure resolves into a series of piers carrying symmetrical arched cantilevers. So far as dead loads are concerned, each pier is loaded symmetrically. Unbalanced live loading can occur, but combined with the dead loads is relatively unimportant.

The bridge was completed in 1914. At that time there was nothing but a covering of low brush on the slopes and floor of the valley. The beautiful trees which now surround it have all grown and developed in the intervening years. A fine lotus pond occupies the low bottom ground.

But the bridge stands unchanged and unaltered. Twenty years have affected it not at all. Birds have built their mud nests against the floor beams below the roadway. Leaks have discolored a few joints. The bottom of a pier shaft or two is bespattered with the dried mud-balls of boys who yearned to do something. Only in these most superficial respects can it be said the bridge has changed. Otherwise it is unchanged. It stands in its fine simplicity, dignified, calm, serene, strong, long enduring, beautiful.

FORM WORK FOR SUPERSTRUCTURE, CABRILLO BRIDGE, BALBOA PARK, SAN DIEGO

Control

Foreword by A. A. Brown

● *Full Text of New Bill to Regulate Practice of Structural Pest Eradication*

ASSEMBLY Bill No. 2382 to regulate the practice of structural pest control, was signed by the Governor of California, July 20th. Under this Act which will become effective September 16th next, all termite-control operators using insecticides, fumigants, or allied chemicals for the purpose of eradication of pests, must have a special license to conduct their business. At the same session of the Legislature the State Contractors' License Law was amended to include a new classification of subcontractors, to read:

> "Including the eradication of or the processing against infestation by pests structurally injurious to building or structure."

Under the amended Contractors' License Law these latter become specialty contractors. The signing of both these Acts by the Governor raises an interesting question as to the ability of the state to charge for the issuance of two licenses to the same contractor for the same purpose. Under the Contractors' License Law it would appear that, so far as structural pest control is applied to buildings and structures, such specialty conractors must be licensed by the Contractors' Board.

There appears to be some doubt that an additional license will be required from these contractors to do work which is specifically included in the Contractors' License Law.

The City of San Francisco has been for some time experimenting and perfecting means of using electric rays for the eradication of structural pests in buildings. It would appear that contractors using such means would be licensed under the Contractors' License Law, but the Structural Pest Control Board would not have jurisdiction over such methods.

This new law as signed by the Governor failed to recognize more than one general method for the control of structural pests, and leaves the entire subject somewhat ambiguous. The text of the new law follows:

An act to regulate the practice of structural pest control; to create the Structural Pest Control Board; to provide for the registration and licensing of persons engaged in such practice, and for protection of the public in the practice of structural pest control.

Section 1. As used in this act "structural pest control" includes the use of insecticides, fumigants, or allied chemicals for the purpose of eliminating, exterminating or preventing infestation of vermin, rodents, parasites, fungi, insects and other pests which infest or damage households or other structures.

"Board" means the Structural Pest Control Board.

"Registrar" means the registrar of structural pest control operators.

"Person" includes person, firm, corporation, association, copartnership, individual, or any combination of any thereof.

Sec. 2. This act shall not apply to:

(a) Public utilities operating under the regulations of the State Railroad Commission;

(b) Persons engaged only in agricultural pest control work licensed by the State Department of Agriculture or county commissioner of agriculture;

(c) Pest control operations conducted by persons upon their own property.

(d) Governmental agencies, State or Federal officials or authorized representatives of any educational or state agency engaged in research or study of pest control.

(e) Licensed architects or licensed civil or structural engineers, acting solely within their professional capacity.

Sec. 3. A Structural Pest Control Board is hereby created in the Department of Professional and Vocational Standards, which board shall, subject to such jurisdiction as is conferred upon the director of said department by an act creating the Department of Professional and Vocational Standards, administer the affairs of said board.

Sec. 4. The board shall be composed of five members, three of whom shall be, and shall have been for a period of not less than five years preceding the date of their appointment, actively engaged in the business of structural pest control; one member shall be a licensed contractor; and one member shall be a licensed structural engineer.

Sec. 5. Within thirty days after this act becomes effective, the members of the state board shall be appointed by and to serve at the pleasure of the Governor. One member shall be appointed for a term which will expire on January 15, 1936; one member whose term will expire on January 15, 1937; two members whose terms will expire on January 15, 1938; and one member whose term will expire on January 15, 1939. Thereafter, appointments shall be for a term of four years, subject to removal by the Governor. Vacancies shall be filled by the Governor for the unexpired term from the class in which said vacancy occurs.

Each member of the board shall serve without compensation, and shall be reimbursed for his necessary traveling and other expenses incurred in the performance of his duties.

Sec. 7. Within thirty days after the appointment of the first members, the board shall meet and organize and elect a president who shall serve for one year. Thereafter, the board shall meet annually during the month of July. The said board shall have power to adopt and enforce reasonable rules and regulations relating to the practice of structural pest control and to the administration of this act.

Sec. 8. Special meetings may be called at any time by the president or by any three members of the board, upon notice for such time and in such manner as the board may provide.

Sec 9. The board, by and with the approval of the Director of the Department of Professional and Vocational Standards, shall appoint a registrar of structural pest control operators, and fix his copmensation and prescribe his duties. The registrar shall be the executive officer and secretary of the board.

Sec. 10 The registrar, with the approval of the board, and subject to the provisions of law relating to civil service, may appoint and fix the compensations of such other assistants as may be necessary.

Sec. 11. The registrar shall keep a complete record of all applications for licenses and the board's action thereon and shall annually prepare a roster of all persons conducting a structural pest control business in the state, one copy of which shall be filed with the Secretary of State, one with the clerk of each county, and one each to all city building and health departments.

Sec. 12. It is unlawful for any person to engage in or offer to engage or to hold one's self out as engaging in the practice of structural pest control or to solicit structural pest control business or to advertise that he practices structural pest control, without having obtained a license from the board.

Sec. 13. Upon the application of any person who is a resident of the state, the board shall determine by examination the qualifications of the applicant. If the applicant proves to be sufficiently versed in the vocation of structural pest control, both as to theory and practice, or in the particular branch of the vocation in which he desires to qualify, there shall be issued to him a certificate permitting him to practice structural pest control. Such certificate shall be nontransferable and shall be the property of the state.

Sec. 14. Each application for a license shall be accompanied by a fee of ten dollars. Every structural pest control operator engaged in or conducting the business of structural pest control or any classes, branches or divisions thereof, in this

state, at a fixed place or establishment on the effective date of this act shall register as such with the said board prior to the first day of October, 1935, and shall thereupon be entitled to and receive a license to continue said business wthout further examination. Such licenses shall be renewed annually on or before July 1, in the same manner as all other licenses issued under Section 15 hereof. Upon failure to comply with this requirement by October 1, 1935, such structural pest control operator must obtain a license in the manner and upon the conditions prescribed in Section 13 of this act.

Sec. 15. Every licensed structural pest control operator shall pay, annually, a fee for the renewal of his or its license in the amount of ten dollars. The board shall mail on or before the first day of June of each year to each such licensed structural pest control operator, addressed to him at his known address, a notice that his renewal fee is due and payable, and that if such fee is not paid by the thirtieth day of June, a penalty of ten dollars will be added to the renewal fee, and in no case shall said penalty or additional fee upon account of such delinquency be waived. Upon the receipt of such fees, the board shall cause the renewal certificate to be issued. If such delinquency extends beyond six months after June 30 of any year, the license may not be reinstated, but such structural pest control operator may be required to obtain a new license in accordance with the provisions of Section 13 of this act.

Sec. 16. The board may upon its own motion, and shall upon the verified complaint in writing of any person, investigate the actions of any structural pest control operator within this state and shall have power in the manner hereinafter provided, and after hearing, to temporarily suspend or permanently revoke a license issued under the provisions of this act if the holder, while a licensee or applicant hereunder, is guilty of or commits any one or more of the following acts or omissions:

(1) Wilful departure from, or disregard of, plans or specifications in any material respect, and prejudicial to another without consent of the owner or his duly authorized representative, and without the consent of the person entitled to have the particular construction project or operation completed in accordance with such plans and specifications:

(2) Wilful and deliberate disregard and violation of the building laws of the state, or of any political subdivision thereof, or of the safety laws or labor laws of the state;

(3) Misrepresentaton of a material fact by applicant in obtaining a license;

(4) Failure in a material respect on the part of a licensee to complete any operation or constructon repairs for the price stated in the contract for such operation or construction repairs or in any modifications of such contract;

(5) Aiding or abetting an unlicensed person to evade the provisions of this act or knowingly combining or conspiring with an unlicensed person, or allowing one's license to be used by an unlicensed person, or acting as agent or partner or associate, or otherwise, of an unlicensed person with the intent to evade the provisions of this act. The word person as used herein shall be deemed to apply to an individual, firm, partnership, copartnership, corporation, association, or other organization or any combination of any thereof;

(6) Failure in any material respect to comply with the provisions of this act;

(7) The doing of any wilful or fraudulent act by the licensee as a structural pest control operator in consequence of which another is substantially injured;

(8) The wilful or negligent handling or use of any poisonous exterminating agent without due respect to public safety;

(9) Wilful fraud and misrepresentation, after inspection, by any person engaged in structural pest control work of any type of infestation found in property or structures;

(10) Fraudulent impersonation of any state, county or city inspector or official;

(11) Wilful and deliberate disregard and violation of fumigation or extermination laws of the state or of any political subdivision thereof.

(12 Failure to comply in the sale or use of insecticides or fungicdes with the provisions of Article 3, Chapter 7, Division V of the Agricultural Code. .

Sec. 17. Proceedings for the suspension or revocation of a license shall begin by filing with the board written charges against the accused; such charges shall be in detail, and sworn to under oath by the complainant. Upon the filing with the board of a verified complaint charging a licensee with the commission within two years prior to the date of filing of such complaint, of any act which is cause for suspension or revocation of license, the board or its secretary must forthwith issue a citation directing the licensee, within ten days after service of the citation upon him, to appear by

filing with the board his verified answer to the complaint, showing cause, if he has any, why his license should not be suspended or revoked. Service of the citation upon the licensee shall be fully effected by mailing a true copy thereof, together with a true copy of the complaint, by United States registered mail in a sealed envelope with postage fully prepaid thereof, addressed to the licensee at his latest address of record in the board's office. Service of said citation shall be complete at the time of said deposit to the provisions of Section 1013 of the Code of Civil Procedure of the state. Failure of the licensee to answer may be deemed an admission by him of the commission of the act or acts charged in the complaint and his license shall thereupon be suspended forthwith pending any hearing of the cause which the board at its discretion may order; provided that the board shall have power, in the event of such failure to answer, to suspend or revoke the license without further evidence than the verified complaint in the case.

Upon the filing of the answer, the board shall fix a time and place for the hearing and give the licensee and complainant not less than five day's notice thereof. The notice may be served by depositing by registered mail in the United States mail a true copy of the notice enclosed in a sealed envelope with postage theron fully prepaid, and addressed to the licensee and to the complainant respectively, at his last known address. With the notice to the complainant there shall be attached or enclosed a copy of the answer. The licensee shall have the right to appear personally or by counsel, to cross-examine witness or to produce witnesses in his defense. The board will have the power to compel the attendance of witnesses, and the production of necessary papers and documents.

Upon the hearing, the board shall hear all relevant and competent evidence material to the issues and shall have power to continue the hearing from time to time as in its judgment may be necessary or proper. After the hearing is concluded and the matter submitted, the board shall, within twenty days after such submission, render its decision in writing, suspending or revoking the license or dismissing the complaint, with a brief statement of its reasons therefor. It shall give to the complainant and the licensee, or their respective attorneys, notice of the decision, by mail in the same manner as prescribed herein for the giving of notice of hearing.

Any citation, notice, or other process or any paper or document provided by this section to be served on any party may be personally served as provided in Section 1011 of the Code of Civil Procedure with the same effect as if served by mail as in this act provided.

Sec. 18. The Department of Professional and Vocational Standards shall receive and account for all moneys collected under this act at the end of each month, and shall pay the same into the treasury to the credit of the "structural pest control fund," which fund is hereby created. The money in this fund shall be expended for the pro rata cost of administrations of the department and for the purpose of carrying out the provisions of this act.

The director of the Department of Professional and Vocational Standards shall, within thirty days prior to each regular session of the Legislature, submit to the Governor a full and true report of the operations of the board during the preceding biennium, including a complete statement of receipts and expenditures.

Sec. 19. Any person who violates any provision of this act is guilty of a misdemeanor and punishable by a fine of not less than fifty nor more than five hundred dollars or by imprisonment in the county jail for not more than six months, or by both.

Sec. 20. If any section, subsection, sentence, clause or phrase of this act is for any reason held to be unconsttutional, such decision shall not affect the validity of the remaining portions of this act. The Legislature hereby declares that it would have passed this act and each section, subsection, sentence, clause and phrase thereof, irrespective of the fact that any one or more sections, subsections, sentences, clauses or phrases be declared unconstitutional.

Progress

by J. B. Lippincott, M.A.S.C.E.

● *Second installment of Paper on "Engineering Achievements in Development of California"*

THE writer can only refer briefly to the hydro-electric development of the state. While the experimental transmission of electric energy for short distances was first accomplished in Vienna, the records available indicate that among the earliest if not the first commercial transmission of hydro-electric energy was from Oregon City to Portland, Oregon, in 1889. This was a single-phase system 13 miles in length. In 1891 a single-phase 10,000 volt plant on San Antonio Creek in Southern California transmitted power 28¾ miles to San Bernardino. An early plant of the three-phase type perhaps the first in America, was built on Mill Creek in San Bernardino County by O. H. Ensign, for the predecessors of the Southern California Edison Company in 1893. It conveyed electric energy 7½ miles to Redlands in 1893 and in 1899 another plant on the same stream delivered power 86 miles to Los Angeles.

John Hays Hammond, the eminent mining engineer, born in San Francisco in 1855 was a pioneer in hydro-electric development, building the Mt. Whitney Power Plant on the Kaweah River largely at his personal expense in 1898. It operated under high heads and was one of the first, the power from which was used extensively for the pumping of water from wells for the irrigation of lands in Tulare County.

Today, hydro-electric plants have been constructed on practically every major stream in the state. Many of these plants are of large capacities such as that of the Pacific Gas and Electric Company on Pit and Feather rivers and the Southern California Edison group on the San Joaquin, three of which latter are operating with heads of about 2000 feet. Fowler in 1923 described all the California hydro-electric installations in U. S. Geological Survey Water Supply Paper 493.

The market of the Pacific Gas & Electric Co. extends from Fresno to the northern limits of California. The southern portion of the state is served by the Southern California Edison Company from Fresno to San Diego County.

The output capabilities of the electric installations in California now are:

Hydro-electric . .	1,752,251 K.W.
Fuel electric . . .	1,146,585 K.W.
Total . . .	2,898,836 K.W.

There are no deposits of good coal in California. Since the development of the oil fields the use of coal in the state has practically ceased.

The power plant being built at the Hoover dam by the U. S. Reclamation Service

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with a present capacity of 515,000 horsepower, will serve Southern California, Arizona and Southern Nevada. Its ultimate capacity is to be three times this amount. Contracts have been let by the Department of the Interior for the sale of this power both to municipalities and corporations at rates that are estimated to be sufficient to pay for the interest and cost of the dam, power plant and ALL American Canal. The transmission line to Los Angeles will be 280 miles long.

Caterpillar Tractors

An important advance in industry and military equipment has been the caterpillar tractor. It was invented by Benjamin Holt of Stockton in 1900. This machine was manufactured for the purpose of plowing the peat swamps of the lower Sacramento Valley. It was first used extensively for engineering purposes on the building of the Owens Valley Aqueduct in 1908. Its application has expanded until it has become an essential tool on heavy construction work.

Large numbers of these machines were shipped from California to Germany prior to the World War, the manufacturers supposing that they were for agricultural purposes. The British Army captured one in Belguim and found it was being used for the draft of the heavy German guns. They found the name of the Stockton manufacturers on the tractor and soon thereafter placed an order for the full output of the factory with the Holts. The caterpillar tractor was the base upon which the armored tank was later built.

Hydraulic Dredge

The hydraulic dredge is a California product which has come into general use. Its invention was claimed by A. B. Bowers who carried on extended litigation in many courts for infringements of his patent rights. He is said to have spent half his working life in this litigation. Another engineer identified with the invention was Col. A. W. Von Schmidt who came to California in 1849.

Late Engineering Central California Projects

The rapid rebuilding of San Francisco following the fire and earthquake of 1906 is probably as great an achievement as has been accomplished by the engineers and architects of America.

The spirit of the engineers of Central California is being exhibited today in the building of the bay bridges and the project for the storage of flood waters on the Sacramento River and their distribution throughout the central valley of the state at an estimated cost of $170,000,000.

The Los Angeles Harbor

The present-day Los Angeles-Long Beach harbor originally was a series of shallow lagoons and tidal and flats onto which the San Gabriel and Los Angeles rivers discharged their debris. The original depth of water at low tide on the entrance bar was but 2½ feet. During the period of Mexican control the local governors made extensive grants of lands to their people, among others the Rancho San Pedro, which extended along the ocean front from present-day Redondo to Alamitos Bay and back into the interior. In the treaty of Guadelupe Hidalgo the United States contracted to honor valid Mexican titles. The United States Land Office, following annexation of California, surveyed the grants and their titles were submitted to a Federal commission for approval of patents. Acting under orders from the California Surveyor General, Major Henry Hancock made the survey of this San Pedro Grant. In doing so he ran its exterior boundary along the high water mark of the San Pedro tidal flats, thus eliminating from private grant the tidal flats which include

practically all of that area which is now the Los Angeles inner harbor. Under the Federal Swamp and Overflow Act designed for the reclamation for agricultural use of swamp lands, and due to a confusion of judicial decisions relative to salt marshes and tidal lands, title was obtained from the state by private parties, of these tidal areas. As the community grew and the importance of a harbor became apparent, largely through the efforts of the Los Angeles Chamber of Commerce, a suit was brought for their public recovery on the theory that private ownership could not extend beyond high tide line. This resulted in their restoration to the state. The City of Los Angeles successfully obtained from the state the authority on its own behalf to control the development of its own harbor. A guiding hand through these historical legal and civic efforts, for a generation, has been D. E. Hughes, a civilian engineer attached to the local Army Engineers office until 1934 when he was retired for age. It was he he who largely made the research of the titles, initiated public policies and the plans for the harbor improvement. Due to his natural modesty, proper credit has not been given to him for this important work. The city has also been most fortunate in the personnel of the Army Engineers who have been stationed in this district and who have effectively aided in this harbor enterprise. They include Lieut. Meyler, Captain now General Fries, Captain now Lieut.-Col. Chas. T. Leeds, Major now General Pillsbury and Captain later General Jadwin, subsequently Chief of Engineers of the Army.

Befort the harbor could be successfully maintained the floods of the Los Angeles and San Gabriel rivers had to be diverted to a new outlet. This was done by the joint efforts of the Army Engineers and the Los Angeles County Flood Control District. The plan of the inner harbor has been ideally laid out to meet the requirements of commerce. Channels, turning basins and slips have been excavated and the dredged material deposited on the intervening flats to raise them to proper elevations for docks and warehouses. As a result there is what has been called a "tailormade" harbor.

As a protection to the entrance of the inner harbor a breakwater was completed in 1912, two miles in length. It is now being extended a mile further. Its proposed ultimate length is 4.5 miles. It will guard the entrance both to the San Pedro and Long Beach harbors. It will form an outer barbor of refuge and anchorage for ships of commerce and war. At present the harbor is one of the best on the Pacific Coast and with the completion of the breakwater will be of unusual merit . The facilities for the handling of ships is superior to the harbors of Northern Europe and the British Isles where great tidal ranges occur and enclosed basins are required. As a result of this engineering achievement 13,000 ships per year now enter and leave this port, transporting 18 million tons of cargo annually valued in 1934 as $664,000,000.

Irrrigation in Southern California

Excluding the Owens Valley Aqueduct 90 per cent of the water supply for the South Coastal Basin, which includes the counties of Orange, Los Angeles, Riverside and San Bernardino (exclusive of Ventura) comes from wells. The streams are torrential during the winter rainy season and almost dry in summer. The torrents have filled the valleys and plains to depths of often over 1000 feet with sands and gravels which have been saturated during long past years. The scarcity of surface water when required has led to the sinking of many wells in these valleys. The estimated underground storage within a fluctuation of their water levels of 100 feet is

6,861,000 acre feet. The geological character of these basins has been described by others. These underground water supplies that could be cheaply and quickly reached with wells whether artesian or pumped, represent the greatest natural resource of Southern California, because of the value of the water for domestic use and the agricultural products that could only be grown in this region by irrigation.

This opportunity, coupled with the necessity for an adequate water supply, has resulted in the invention of what is called the "California type" of well, consisting of steel pipe, driven together in overlapping double lengths of 2 feet as it is forced into the ground by hydaulic jacks and cleaned out with sand buckets. Small wells of this type were sunk as early as 1872 near Anaheim. These wells and the methods used in sinking them are described in detail by Slichter in U. S. Geological Survey Water Supply Paper 140. Wells of this character in diameters up to 30 inches are now frequently put down in these gravels to depths of 1000 feet . This type of construction has expanded to other portions of the world.

Concurrently with the development of this California type of deep well, a pump was necessary to operate in such a confined space and with wide fluctuations of water levels. There resulted the deep well pump, which is suspended in the well to any desired depth and operated with an electric motor directly connected to its shaft. It consists of a series of small propeller blades set on the shaft. It is now generally used. Over-all efficiencies of over 70 per cent are guaranteed by manufacturers for this equipment. As much as 10 second feet are lifted 400 feet or more by these plants. The installation is cheap and flexible as compared to former standards and is a distinct engineering and manufacturing advance.

As far as available records show, the first deep well turbine installations were manufactured in Paris in 1883 for the City of Moscow, Russia. This pump consisted of 11 vertical centrifugal pumps with impellers sufficiently small to insert in a 14 inch well. The bearings were exposed to the sand in the water and its operation was unsatisfactory.

The Pabst Brewing Company of Milwaukee is 1902 commissioned Prof. Daniel W. Mead to devise a pump which would handle water from a 16 inch deep well for the manufacture of their beer, water standing 200 feet below the surface of the ground when pumping. Prof. Mead conferred with Byron Jackson of San Francisco. This resulted in the design of a pump and inner cover pipe for the rotating shafting. This basic design still persists. The goal to which the manufacturers have striven was to design a pump that could be so installed in a well that when working at full capacity would not draw water below its suction limit and which could operate so that sand would not injure the moving parts.

Coincident with the development of this type of pumping plant, and as an essential part thereof, California hydro-electric engineers have pioneered in long distance power transmission both in Central and Southern California.

The development of the California type well, the deep-well turbine pump and the successful distribution of electrical energy throughout the farmed areas has resulted in the expansion of irrigation from pumping plants in Central and Southern California. In the counties of Ventura, Los Angeles, Orange, San Bernardino and Riverside 657,000 acres were irrigated in 1930. Probably 90 per cent of this area is being served by its 5874 pumping plants. In addition there are large areas within municipal boundaries so served.

Spreading Floods

A novel feature in Southern California water supply engineering consists of the

diversion of flood flows by means of canals on to "spreading basins" situated on the apex of absorbent debris cones. By this means water is put underground at low cost and conserved for later use by wells located at lower elevations. In the six Southern California counties referred to above this conservation policy is practiced on all important streams. Storage underground is not only cheaper than in surface reservoirs, but water so impounded is free from evaporation losses, which in extreme instances consume as much as 50 per cent of the volume stored in surface reservoirs.

The first spreading for conservation was on the cone of Cucamonga Creek to build up the water levels that furnished the flow for water development tunnels further down the cone. In 1909 application under the Right of Way Act was made by water users of the Santa Ana River for public lands at the mouth of the canyon east of San Bernardino as an underground reservoir site for the conserving of flood water by spreading. This grant was made by the government for 960 acres and works have been maintained in this locality since then for this purpose. The practice of spreading water has been extended to every stream of importance in the South Coastal Basin. The State Division of Water Rights approves application for water rights for this purpose as a beneficial use. The rates at which these spread waters are absorbed vary from 1 to 3 second feet per acre. The average annual amount of water that has been put underground from the floods of the Santa Ana, Mill Creek and San Gabriel for the period in which they have been operating is 28,660 acre feet. These operations, however, have been conducted mostly during a cycle of dry years when the supplies available for spreading were below normal.

The Los Angeles City Water Department has also spread some of the winter run of the Los Angeles Aqueduct on the gravels of the San Fernando Valley. They have stored by this process in the last four seasons, 100,000 acre feet of water. This water is recovered by their pumping plants when required.

The Los Angeles County Flood Control District was formed for the purpose of preventing flood damage with levied channels and for the regulation of flows in reservoirs to such volume as would permit of their diversion for spreading, and absorption. Eleven dams have been built by this organization. About $50,000,000 has been expended on their program. The effort is being made to regulate and conserve all the winter and flood runoff of the mountain streams of Los Angeles county so that none of that water shall be wasted into the sea.

The extensive uses of underground waters have made it necessary to revise the inherited English laws controlling their ownership. Court decisions have resulted holding that the lands overlying them have a prior right and that exportations to other localities can only be made therefrom when it is shown that a surplus exists and the diverted supply can be taken without material injury to the overlying land owners.

Arch Dams

As far as the writer knows, the Zola dam, built in France about the year 1843 was the first thin section dam relying for its stability on the arch principle. It is 119.7 feet high, 48.8 feet thick at the base, 19 feet thick at top and with a radius of 158 feet at the crown. This type was not at first generally accepted by the engineering profession as safe and it remained for California engineers to courageously endorse this principle.

In 1883-84, F. E. Brown of Redlands, California, engineer for the Bear Valley Irrigation Company, found it necessary to store winter flood waters on the upper por-

tion of the Santa Ana River at Bear Valley for the rapidly growing citrus region of Redlands and Highlands. The available funds for this work were meager. Mr. Brown was an engineering graduate of Yale University. He built this original Bear Valley Dam with a thin section relying on the arch principle. It is 64 feet high, 8.4 feet thick at a depth of 48 feet, 20 feet thick at its base, and with a radius of 335 feet, constructed or rough ashlar masonry. It was in continued service for 27 years until it was overtopped by the building in 1910-11 of a higher multiple arch dam a short distance downstream from the original structure. The building of this light arch dam was followed in 1898 by the Upper Otay Dam in San Diego County which is of a still frailer section being 4.0 feet thick at the top, 14 feet at its base and 88.7 feet total height with a radius of 359 feet. These dams accomplished the purpose for which they were designed. Writer knows of no thin arch dam that has failed. The study of the principles involved in the design of thin arch dams culminated in the building and testing of the Stevenson Creek test dam of very thin section in Central California in 1926, from funds raised by subscription of $120,000 . It is described in the proceedings of the American Society of Civil Engineers for May, 1928, Part 3.

Multiple Arch Dams

As a competitor in economy to the thin section single arch dam Mr. J. S. Eastwood of Fresno, California, designed the multiple arch dam consisting of a series of short radii arches resting on buttresses inclined up stream. The first one of these dams in California was built in 1908 at Hume Lake, Fresno County, California, for the Hume Lumber Company. Their construction has been followed by numerous others. They have successfully operated but experience has taught the necessity of using heavy reinforcement in the buttresses to prevent shrinkage cracks. This was not foreseen with some of the first of these dams built on this design.

The first multiple arch dam of which the writer knows was built by French engineers of masonry at Hyderabad in India about 1811. The arches were vertically suported by the buttresses. It is not known whether Mr. Eastwood was aware of this design.

Oil

Next to agriculture the greatest natural resource of Southern California is the oil that has been found during the past generation. According to the California State Division of Mines, up to 1933, 4,064,684,-473 barrels of oil have been produced with an estimated value of $4,074,491,151. This same authority states that the gold production in the State of California from 1848 to 1933 inclusive has amounted to $1,879,-919,157. According to these figures therefore, the value of the oil produced has been over twice that of the gold. As the shallower oil sands have become exhausted, subsequent deeper drilling has pentrated new deposits of greater value. Equipment has been improved until wells are now drilled to depths of 10,000 feet. The writer cannot presume to describe the oil well equipment that has been developed locally, but he does know that it is being shipped to several foreign countries. A branch of the profession known as petroleum engineering has resulted from the extraction of oil.

[This paper will be concluded in the September number.]

Institute

by Ernest J. Russell

● *Activities and Set-up of the National Organization Tersely Outlined by the Retiring President*

THERE is a general impression that The American Institute of Architects is located in Washington. This is an erroneous idea because the Institute is comprised of individuals and it is those individuals, through their Chapters and through their delegates to conventions, who are the Institute and determine the policies which are to be pursued. However, the general activities of the Institute are conducted in Washington, in The Octagon House, where are located the executive secretary, four clerical assistants, and the bookkeeper. Upon this absurdly small staff—that is, small for a national organization—falls the duty of carrying on the major portion of the work of the Institute. Many members in visiting The Octagon from distant cities are surprised to find that the officers are not in daily attendance, and that even the directors are absent. As these officers and directors are usually practicing achitecture in their home towns, the time they can give to the affairs of the Institute in Washington is comparatively slight. Outside of the meetings of the board and executive committee, their interest in Institute affairs, and in the direction of those affairs, is maintained by correspondence.

The individual is the vital spark of the Institute. It is the interest or the apathy that you display that makes or mars the national body. The Institute is to you what you are to the Institute. It gives generously of its efforts to improve the conditions under which you practice your profession. The opportunities for the improvement of this practice are unlimited, but it depends upon you as to how much these possibilities are developed.

When you realize that less than fifteen per cent of the structures that are erected in this country are designed by men architecturally trained to design them, you can visualize the enormous field for future development. Add to this the advances that are being made in methods and materials for construction and you can see how greatly this again enlarges the field. The full development will take years to accomplish; will require self-analysis on the part of each member of the profession, as well as a consecration to the cause of good architecture.

Conventions give us an opportunity to talk to one another, to gain experience from our contacts, and to express approval or

disapproval of the action of the board of directors and the officers. The programs of conventions are criticized because of the time consumed by organization or internal matters, and because the practice of architecture as a profession and as an art receives too little attention. The criticism is justifiable, but it is difficult to correct these conditions under the present set-up. The board is forced to bring all matters involving policy to the convention for decision. While the board exercises all the powers conferred upon it by the conventions, these powers are necessarily restricted. I strongly recommend that this question of convention programs be given special study by a committee appointed for the purpose. For this convention the board eliminated the reading of its own report, solely for the purpose of saving the time of the delegates. Much more can be done along these lines, but it requires special study by a committee working the year around. Such a committee could receive suggestions throughout the year, and it should receive them well in advance of the time of the spring meeting of the executive committee, as that committee usually formulates the first draft of the program for the convention. As a rule, it takes from two to three months to arrange all the details.

Let us pause for a moment to take a long-range view of the Institute and endeavor to draw a true picture of its past achievements, its present position, and its possible future influences on our social and economic life. Seventy-eight years ago, when the Institute was formed, a professional architect enjoyed scant recognition as a necessary factor in the development of our communities. He was also sadly handicapped by suspicions and petty jealousies among his fellow practitioners because of the lack of any accepted standards of professional ethics and practice. The opportunities which the Institute afforded, through its Chapter support and annual conventions, for men to meet in intimate association and to cooperate for their common good, ultimately broke down the barriers of individual reserve and suspicion. We can now rejoice that the membership is united in a body, fundamentally harmonious while differing sharply at times as to policies.

Let us also record our gratitude for and our great indebtedness to those valiant and unselfish men who bore the brunt of the battle through the long years, and who by their unswerving loyalty and fine example held our ship of state true to its charted course. If we have not yet realized a complete fulfillment of our aspirations and achievement of our ideals, we may derive much satisfaction from the degree of public recognition which is today accorded the architectural profession. How immeasurably greater would that recognition be if all the practicing architects in America could be brought to realize that it is to their interest to have a national organization assume and maintain a leadership!

An eminent divine was recently asked, Is the church worth supporting? Is it worth the investment of our time, our means, and our talents? Replying, he said, "When a man ceases to be an enthusiastic churchman, he ceases to be a Christian in any sense that matters very much." Is not this equally true of the members of our profession, and their relationship to the Institute? It is not an exaggeration to state that the advancement of the profession of architecture, and the interests of the building public throughout the country have resulted from the efforts and the leadership of the Institute.

Practice

● *Standard Requirements of the Profession in Los Angeles Area as Approved by Southern California Architects*

ARCHITECTS throughout the country will find interest in the following Outline of Standard Requirements for the Practice of the Profession, as prepared and approved jointly by the Southern California Chapter, The American Institute of Architects, and the State Association of California Architects, Southern Section.

Foreword: A successful building, whether house, store, factory, or institution must be designed and planned not only to meet individual ideas and to serve definite needs, but due to the exigencies of a power age and the rapid development of new construction materials, the elements of economic planning and appropriate design are no longer subject to personal requirements alone, for they have become increasingly a matter of public concern and social welfare. The factors of structural safety and health requirements have been recognized as such by legislative enactment.

The services of a skilled and experienced architect have become an economic necessity on even the smallest building project, and through the use of such services the owner of the building may coordinte his personal requirements with the demands of the society in which he lives.

Much confusion has existed in the public mind as to just what should constitute the services of an architect, and the public, as well as the architectural profession, has long felt the need for some kind of a measuring stick for the highly technical requirements of architectural practice.

An outline of the standards of service becomes of increasing importance in the light of governmental requirements under the Federal Housing Administration. This pamphlet is prepared in order to acquaint the home builder, as well as loaning agencies operating under the Federal Housing Administration program, with certain standards which he should reasonably expect and require from the architect whom he employs for these services.

The Architect's Services: The following services are rendered by every architect of skill and experience. They have been found to be essential and should be included specifically in the agreement between the architect and the owner.

1—Purchase Of Lot

(a) If the lot upon which the building is to be erected has not yet been purchased, an examination of the property or properties under consideration will be made and the architect's opinion given. The architect's opinion or recommendation in this respect may save the owner from certain basic mistakes, such as the purchase of property containing deep fills or suspected by the architect of containing them, or of properties where the conditions of drainage, orientation, and ground area are unfavorable. If the work contemplated is to be financed by a Federal Housing loan, the architect should assist in determining whether or not the property in question will meet the property standards of the Federal Housing Administration.

(b) If the property has been purchased, the architect will visit it before any sketches are started and will advise as to the best general use of the property—location of units with respect to sunlight, prevailing winds, grades, and the like.

(c) The architect will consult with the owner in order to determine the owner's needs and requirements and will advise him as to the possibility of realizing these requirements under the expenditure contemplated. The architect's opinion of costs, as outlined in 2(c) below, will be found to be based on complete and inclusive costs for all work required for a complete structure, including permits, fees, and fees for architectural services. In this way the architect endeavors to give the owner an honest opinion of the outside cost of the work. In many cases it has been found that an inexperienced owner is misled by a comparison of cost estimates obtained from others than qualified architects, as it is not general practice for contractors to include in their estimates anything more than the general contract costs. This cost is often given to the owner by the builder as the net cost and the builder's fee has then to be added.

2—Preliminary Studies

(a) Charge shall be made for all preliminary work which shall include visit to the site and sufficient number of studies to satisfy the client's needs. The professional architect does not render so called "free service," or present "free sketches without obligation." The definite arrangement for architectural services, as outlined under "The Architect's Fee," should be made and entered into prior to the start of preliminary sketches.

(b) When sketches are finally approved by the owner, the architect should outline a sketch specification which would state in general the kind and quality of construction and finish contemplated by the architect and owner.

(c) The architect shall prepare and present to the owner a careful budget of all cost involved. While this budget can be regarded only as approximate and a representation of the best judgment of the architect as to costs, it will nevertheless indicate to the owner the many divisions which are to be made in the cost of the work, and shall include contractor's compensation and the architect's fee. The budget shall be based upon the approved preliminary sketches and the outline specifications. This budget will provide the basis whereby the architect may suggest to the owner the possible savings and explain how they effect the structural permanency of the building, or the finish and appearance of the building, or both, and will indicate to the owner what items of cost are essential to obtain the proper result and what are less vital. Sketches, together with the sketch specifications and the budget, will be revised until such time as the entire program meets the requirements and financial program of the owner.

3—Preparation Of Complete Working Drawings And Specifications

After the approval of these preliminary studies, the architect will proceed with the preparation of complete working drawings and specifications.

These shall include the following as minimum requirements:

a. Plot Plan.
   (1) Legal description of property.
   (2) Street address.
   (3) Grades—present and finish.
   (4) Drainage.
   (5) Utilities.
   (6) Legal requirements—set back lines, easements, etc.

b. Structural Work.
   (1) Complete dimensions on all plans, sections, and detail.
   (2) Sufficient information to indicate all structural framing, walls, piers, bracing, etc.
   (3) At least four elevations and at least one section of any building.
   (4) Chimney and fireplace details.
   (5) Reinforced concrete and steel details.
   (6) Stairways.

c. Plans and Details.
   (1) Either complete window and door schedules or sufficient scale drawings to accurately show the size, type, and materials required for all doors, and windows.
   (2) To show operation of all doors, windows, and other movable equipment.
   (3) Scale details, including details of all kitchen cabinets, both in elevation and section, and all special cabinet work—linen cases, cupboards, etc., sufficiently completed for the accurate estimating of the work.

d. Mechanical Equipment.
   (1) To show general runs and location of plumbing lines, vent stacks, cleanouts, etc.
   (2) Gas, electric, and water service meters, Shut-offs, panel boards, motors, drains, etc.
   (3) Heating and ventilating equipment, furnaces, ducts, radiators, vents, and motors.
   (4) Special structural framing in order to accommodate all mechanical equipment.

e. Specifications.

(1) To definitely specify all materials in detail as to kind, quality, and workmanship.

4—Taking Of Bids And Agreement Between Owner And Contractor

Upon completion of the working drawings and specifications and the approval of the same by the owner, the architect will obtain from a list of responsible and competent contractors comparative bids covering the work to be done. Upon the receipt of satisfactory bid for this work, the architect shall prepare contract forms which protect the interests of both the owner and the contractor. Contracts must stipulate in full the contractual relations between owner and contractor and the methods of payment. It is vital to the success of the undertaking that the contract be legal and that is can be recognized in court if the occasion arises. The protection afforded the owner by the architect's knowledge of contract and building law may prove to be worth more than the architect's charge for the entire service.

5—Supervision And General Administration Of The Construction Work

(a) This portion of the work shall include the general accounting and records of the work, the preparation of all modifications to the contract, the issuance of certificates of payment to contractors, and the preparation of all large scale and full size detail drawings necessary as the work progresses for the full and complete exposition of the work. *Note*: Any modifications or variations to the original contract document constitute an item of the greatest importance and the owner should issue no instructions to the contractor on the work, but should consult the architect in all instances where it is desirable to change or alter any items as set forth in the contract documents, including the drawings. In this way only is it possible to control so-called "extras" on the work. No changes or variations should be made from the original documents unless such changes and variations are ordered in writing on a form furnished for the purpose by the architect, signed by the architect and counter signed by the owner. These orders for changes or modifications should include a definite statement of the cost or credit to the owner for such change. If this proceedure is followed conscientiously by both the owner and the architect, the major portion of the difficulties on construction work due to verbal orders, claims for extras, etc., will be avoided.

(b) Financial accounting shall be in sufficient details to give an accurate statement of the status of all accounts at any time during the building operation, and shall be made available to both the owner and the contractor.

(c) All financial arrangements between all three parties shall be in writing, including the agreement between the architect and the owner stipulating the architect's fees.

(d) All change orders issued during the course and operation of the contract shall be written and shall bear both the signature of the owner and the architect. (See note under 5a above.)

(e) A sufficient amount of general supervision of the construction work in the form of visits to the site to determine that the contract requirements are being properly executed, to furnish such additional information and interpretation of the plans and specifications to the contractor as may be found necessary to prevent mistakes in judgment or in proper understanding of the requirements. An architect cannot be expected to obtain quality workmanship from a cantractor not equipped to produce it, but the architect will recommend only those contractors whose ability and experience can produce the type and quality of work required.

6—Preparation Of Necessary Notices Of Completion

(a) This service should include the preparation of the necessary notices of completion and the presentation of same to the owner for his signature at such times as required to protect the owner under the lien laws. It should be the architect's duty to see that these notices of completion are filed within the proper time.

(b) The fee ($1.00 for each contract) charged by the County Recorder, however, is not a part of the architect's service and should be paid for directly by the owner.

7—Importance Of The Architect's Services In Relation To The Federal Housing Administration

Under the requirements of the Federal Housing Administration are included stipulations governing not only the general health and comfort of the occupants of the building to be erected, but regulating items which effect the permanency of the structure—its adaptibility to use and its suitability to the neighborhood and surroundings, and its continued desirability and wearing qualities.

All architects operating on work to be erected under the F. H. A. program must be familiar with these requirements.

THE ARCHITECT'S FEE—The architect's fee shall be based upon the percentage of the cost of the work, and any architect operating under the Federal Housing Administration shall render complete services as outlined above. A schedule of minimum fees has been adopted by the State Association of California Architects in which the minimum fee for residential work is set at not less than ten (10%) per cent. This ten (10%) per cent is based upon the cost of the building as evidenced by the contracts let and the authorized modifications thereto, and includes the cost of all items forming a part of the building and the cost of all connections to the building and items of attached equipment, as well as the contractor's fee. It does not include movable furniture or unattached equipment. If the architect furnishes advice or additional service in the matter of furnishings or the purchasing of movable equipment, he shall be paid for such service as determined between himself and the owner prior to his employment for this service.

—Following is the Schedule of Minimum Fees on various types of buildings, as established by the State Association of California Architects and the Southern California Chapter of the American Institute of Architects. This schedule represents the minimum fee at which the professional architect is able to operate and perform fully the kind and character of technical service outlined herein.

(a) Schedule of Minimum Fees.

Group One—Minimum Fee 6 per cent.
Industrial Buildings.
Market Buildings.
Factories.
Buildings of like nature and complexity.

Group Two—Minimum Fee 7 per cent.
Hotels, Apartments and Multiple Dwellings.
Theaters and Auditoriums.
Commercial Buildings.
Buildings of like nature and complexity.

Group Three—Minimum Fee 8 per cent.
Schools and Educational Buildings.
Churches, Hospitals and Libraries.
Clubs.
Buildings of like nature and complexity.

Group Four—Minimum Fee 10 per cent.
Residences.
Swimming pools and Tennis Courts.
Shop Fronts and Fixtures.
Work of like nature and complexity.

(b) Fees Higher Than Minimum.

Fees higher than the minimum are in no wise prohibited and are proper in all cases where the building problem is of greater complexity than the average of its kind, and would result in an increase in the architect's costs; or where special services are required; or where the reputation and ability of the architect command a larger professional fee.

CONCLUSION—The employment of the full services of a qualified architect takes the building project out of the realm of over optimistic expectations, as well as from that of bitter and unforseen disappointment. Your completed structure will be fully realized and estimated on paper before a shovel full of earth is lifted. The architect will not hold out a promise of more for your money than that money can honestly buy on a competitive market. On the other hand, if you have taken the architect into your confidence and have earnestly worked with him as your agent and technical advisor, you will upon completion of the work neither find yourself the owner of a building that is not as you expected it to be, nor will you find yourself confronted with costs which exceed the amounts of the commitments into which you have fully entered and agreed upon and for which you have a signed record.

The architect's complete plans and specifications will enable contractors bidding on the work to enter into a fair and intelligent competition. Anything less than complete architectural documents results in bids that are based either upon guess work as to the amount and extent of the work required or upon mental reservations as to claims which the contractor can make for extras, predicated upon the plea that "the drawings didn't call for that."

If your desire is to build a house or other structure that will represent honest effort and full value for your building dollar—a technical operation into which every party to the effort—owner, contractor, architect and workmen—enters with his eyes open and his commitments fully and freely entered into; an enterprise into which all parties enter with a desire to achieve a definite and commendable result, then there is but one method open for your consideration—the employment of a qualified architect.

« « « « With the Architects » » » »

TWO LARGE PROJECTS

Two building projects of considerable size are keeping the office of W. D. Peugh, architect, busy. One is a ten-story reinforced concrete store and office building for Louis R. Lurie, the foundations for which have been started on Montgomery Street, between California and Sacramento Streets, San Francisco, and the other project is an agricultural and livestock pavilion in Visitacion Valley for the San Francisco-San Mateo Agricultural District. The two projects will run well over a million and a half dollars. Cahill Bros. have the contract for the Lurie Building. This will be the first office building to be erected in San Francisco since the depression.

FIRE HOUSE AND TOWER

James W. Plachek, Mercantile Trust Building, Berkeley, has had his plans approved by the Berkeley City Council for a $25,000 building project for the City of Berkeley, consisting of a reinforced concrete drill tower and machine shop and a frame and stucco fire house. The location is Cedar Street, between Eighth and Ninth Streets. The tower will be equivalent to a five-story building and will be used for fire drills and classroom instruction. W. Adrian is the engineer.

EAST BAY DWELLINGS

Edwin L. Snyder, 2101 Addison Street, Berkeley, reports completion of plans for a large U-shaped Spanish country house in Walnut Creek, Contra Costa County; a brick veneer house for W. H. Moebus at Atherton, San Mateo County; a $16,000 dwelling in North Berkeley; an English house on Santa Barbara Road for O. D. Adams and a California-Colonial house in Berkeley Highlands Terrace, for John H. Jones.

PERSONAL

George Rasque, Jr., has been spending his vacation from his studies in the architectural department of Washington State College, gaining additional knowledge as a draftsman in his father's office in Seattle.

TWO CONTRACTS

The Clinton Construction Company, 923 Folsom Street, San Francisco, has recently been the successful bidder on two public works projects of considerable magnitude. In both cases contracts have been awarded to this company which is now completing work on the San Francisco Oakland Bay Bridge tunnel. The larger of the two contracts just taken by the Clinton Company is for a new Federal Mint Building at Duboce Avenue, Herman, Webster and Buchanan Streets, San Francisco. This is to be a four-story steel frame, concrete and granite structure costing $935,000. The second contract is for the Administration Building and Toll Plaza at the east end of the Bay Bridge.

UNIFORM BUILDING CODE

At the request of the California State Chamber of Commerce, Charles S. Knight, secretary, the Southern California Chapter, American Institute of Architects, and the State Aassociation of California Architects have jointly appointed a special committee for the purpose of reviewing the material which has been prepared by the Uniform Building Code Committee. Members of the special committee are: Robert H. Orr, chairman; Earl T. Heitschmidt, Herbert Powell and A. C. Zimmerman.

OCTOBER CONVENTION

The annual convention of the State Association of California Architects will be held this year at Santa Barbara, October 3, 4 and 5. A committee headed by Santa Barbara architects has been named to arrange details. Matters of considerable importance will be brought before the 1935 convention, and it is expected that there will be a large attendance.

HILLSBOROUGH RESIDENCE

Gardner A Dailey, Shreve Building, San Francisco, has completed working drawings for a $25,000 English Tudor residence in Hillsborough for Lloyd Liebes.

SOUTHERN CALIFORNIA CHAPTER

The August meeting of Southern California Chapter, The American Institute of Architects, was held at the Union Air Terminal, Burbank, August 13. Dinner was served at 7 p.m., followed by an inspection of the airport. Members of the Structural Engineers' Association of Southern California attended. Next month's meeting of the Chapter will be held at Bel-Air and will be the occasion of the announcement of the election of J. J. Backus, superintendent of the Los Angels city building department, to life membership in the Chapter.

ADMINISTRATION BUILDING

Gordon B. Kaufmann, Union Bank Building, Los Angeles, has completed working drawings for a three-story reinforced concrete Administration Building for the Los Angeles Board of Education, estimated to cost $335,000. The structure will contain the home economics and industrial arts departments, besides administration offices.

MILLER & WARNECKE BUSY

New work in the office of Miller & Warnecke, Financial Center Building, Oakland, includes a Spanish residence at Orinda, an English style dwelling in Piedmont Pines, Oakland, an Early California home in Mill Valley and an auto sales building and garage at Centerville, Alameda County.

LOS ANGELES UNION DEPOT

Tentative plans have been approved for the new Union passenger depot in the Plaza Square, Los Angeles. The architects are John and Donald B. Parkinson, Title and Trust Building, Los Angeles. The Los Angeles Union Terminal comprises the Southern Pacific, Santa Fe and Union Pacific roads. Construction of passenger subway and ramp is already under way.

$18,000 HOME

Dr. E. J. Casper, manager of the Vallejo Light & Power Company, Vallejo, will build an $18,000 Italian style residence in Vallejo from plans by Charles E. J. Rogers, Phelan Building, San Francisco.

TWO ENGLISH DWELLINGS

Martin J. Rist, Phelan Building, San Francisco, has prepared drawings for two attractive English style dwellings in Ingleside Terrace, San Francisco, to cost $7,500 each. A. J. Wilbe is the builder.

SCHOOL AND RESIDENCE WORK

Plans have been completed by Dragon & Schmidts for completion of a two-story reinforced concrete classroom building to the Albany High School, to cost $36,000. Besides nine classrooms, there will be a library and art studio.

The same architects have also completed drawings for a frame and stucco gymnasium at Red Bluff for which a $40,000 grant has been asked from the Federal Government.

A contract has been let by the same architects for a two-story stucco dwelling in Oakland for Mrs. Hazel Cullin. C. M. Norgrove is the contractor.

DEPARTMENT STORE ALTERATIONS

The Weinstein Company will spend $25,000 in alterations to the department store building at Maiden Lane and Kearny Street, San Francisco. Plans for the work have been prepared by Hyman & Appleton, 68 Post Street, San Francisco.

Another alteration project in San Francisco is at Post and Stockton Streets, for which Albert Schroepfer has made plans for the lessees, the Randolph Jewelry Company.

SAN LEANDRO SCHOOLS

Four school buildings at San Leandro will undergo structural changes to comply with the state earthquake law. Plans have been prepared by H. J. Brunnier, San Francisco, and the authorities are now considering ways and means for financing the proposed improvements, estimated to cost $120,000.

NAPA THEATER

The old opera house at Napa is to be extensively remodeled into a moving picture theater for the Fox circuit; $30,000 will be expended from plans by A. A. Cantin, architect and F. W. Kellberg, engineer, San Francisco. The remodeled structure will have two stores and an auditorium seating 875 persons.

LOFT BUILDING CHANGES

Approximately $20,000 will be expended on structural and miscellaneous changes to the five-story Class B. loft building, owned by the Pond Estate, at 576 Mission Street, San Francisco. W. Adrian, structural engineer, 417 Market Street, San Francisco, prepared the plans.

NEW ASSEMBLY BILLS AFFECTING THE ARCHITECTURAL PROFESSION

THREE assembly bills of particular interest to the architectural profession, passed by the California State Legislature, have recently been signed by the Governor. A summary of their text follows:

ASSEMBLY BILL No. 1833
Signed by the Governor June 15, 1935
(Chapter 343)

An act to amend Section 1 of "an act to reguate the construction of buildings in the State of California, in respect to resistance to horizontal forces, providing penalties for the violation thereof and providing that this act become effective immediately," approved May 26, 1933, relating to construction of buildings.

The people of the State of California do enact as follows,

Sec. 1. Section 1 of the act cited in the title hereof is hereby amended to read as follows:

Sec. 1. Every building of any character, and every part thereof which is hereafter constructed in any part of the State of California, including every incorporated city, incorporated city and county, and county expressly excepted from the operation of this act, shall be designed and constructed to resist and withstand horizontal forces from any direction of not less than either two (2) per cent of the total vertical design load or for the following applicable wind exposed pressure on the vertical projection of the exposed surface the horizontal force used to be the one that produces the greatest stresses in the building: twenty (20) pounds per square foot on every portion thereof more than sixty (60) feet in height; fifteen (15) pounds per square foot on every portion thereof not more than sixty (60) feet in height.

ASSEMBLY BILL No. 166
Amendment to Field Act. Signed by the Governor June 7, 1935

An act to amend Section 1 of an act entitled "An act relating to the safety of design and construction of public school buildings, providing for regulation, inspection and supervision of the construction, reconstruction or alteration of or addition to public school buildings of or addition to public school buildings and for the inspection of existing school buildings, defining the powers and duties of the State Division of Architects in respect thereto, providing for the collection and disposition of fees, prescribing penalties for violation thereof and declaring the urgency of the act to take effect immediately," approved April 10, 1933, relating to the buildings and work subject to the provisions of said act.

The people of the State of California do enact as follows:

Section 1. Section 1 of the act cited in title hereof is hereby amended to read as follows:

Section 1. The Division of Architecture of the State Department of Public Works is hereby vested with authority under the police power of the State and directed to supervise the construction of any school building or, if the estimated cost exceed four thousand ($4,000) dollars, the reconstruction or alteration of or addition to any school building, for the protection of life and property as hereinafter provided.

The term "school building" as herein used means and includes any building used or designed to be used for elementary or secondary schools or junior college purposes and constructed, reconstructed, altered or added to, by the State or by any county, city, city and county, or other political subdivision or by any school or junior college district of any kind or character whatsoever within the State.

ASSEMBLY BILL No. 753
Signed by the Governor April 18, 1935
(Chapter 65)

An act to amend Section 4 of "An act to regulate the construction of buildings in the State of California, in respect to resistance to horizontal forces, providing penalties for the violation thereof and providing that this act become effective immediately," approved May 26, 1933, relating to the application of said act.

The people of the State of California do enact as follows:

Section 1. Section 4 of the act cited in the title hereof is hereby amended to read as follows:

Section 4. This act shall not apply to the following buildings:

(a) Any building not intended primarily for occupancy by human beings and no part of which is located within the limits of an incorporated city or incorporated city and county.

(b) Any building designed and constructed for use exclusively as a dwelling for not more than two families and no part of which is located within the limits of an incorporated city or incorporated city and county.

(c) Any building on which work has actually been commenced prior to the effective date of this act.

(d) Any buildings not intended primarily for occupancy by human beings, all or a part of which is located within the limits of an incorporated city or an incorporated city and county, when such building is designed and constructed primarily for use in housing poultry, live stock, hay, grain or farming machinery and supplies.

UNIFICATION AND THE CONVENTION

Under the heading "Unification and the Convention—'Damnant quod non intelligunt'," Tirrell J. Firrenz writes about the recent A. I. A. convention in the Monthly Bulletin of the Illinois Society of Architects, thusly:

"That Unification is 'all right for the other fellow but not for me' seems to be the attitude of the American Institute of Architects as expressed by its 67th Annual Convention which was held in Milwaukee during the last week in May. Expanding classes of membership, which would have provided an inducement for all architects to become members of the Institute, were voted down decisively.

"This action was forecast at the meeting of state architectural societies prior to the Convention when delegates of this group went on record as opposed to surrendering any state rights. The net result of these two actions leaves the Institute with its own restricted numbers and the provision that any unification through Institute auspices will henceforth have to be in the nature of a simple federation of organizations in place of the amalgamation previously visualized.

"A series of motions as to the 'sense of the meeting' finally clarified the atmosphere and paved the way for some badly needed action. Chapter IV of the new by-laws was deleted and the revisions proposed by the state societies substituted therefor. Each delegate held his breath as the tellers polled the Convention and what a sigh of relief there was when the necessary two-thirds vote was announced. It was felt at last that some sort of accomplishment might be possible. Additional motions then approved the suggestions, first, that all sections of the by-laws inconsistent with the new unification chapter be repealed and corrected by the Board of Directors; second, that the state societies be left free to publish any bulletins or handbooks which they might elect; and third, that hereafter the convention programs set aside one day for a pre-convention meeting of the state organizations.

"Thus was a conclusion reached after four years of effort in the great unification movement. Who can say that this is the final solution? To quote from President Russell's address to the convention: 'If we have not yet realized a complete fulfillment of our aspirations and achievement of our ideals, we may derive much satisfaction from the degree of public recognition which is today accorded the architectural profession. How immeasurably greater would that recognition be if all the practicing architects in America could be brought to realize that it is to their interest to have a national organization assume and maintain a leadership!'

"Such an organization is inevitable. Will it be the Institute which is to become more truly representative of the entire architectural profession, or will the Institute's own 'hygienic obsessions' eventually stimulate the creation of another national group?

"And so with these speculations on the future course of events, we close for the summer our story on the unification of the architectural profession. There remain, however, a few thoughts which might be worth while recording. These were engendered by the Convention's remarkable spectacle in contrasts which will long be remembered with conflicting emotions.

"The complete control of state organizations repeatedly insisted upon during the past four years was reduced to the simplest of affiliations. The delegates refused to accept the new provisions making it possible for all registered architects to become members of the Institute, but in the next moment they proceeded to approve the election of draftsmen to corporate membership even in states

where registration laws are in effect. The Convention directed that the long-desired revision of the by-laws be carried into effect and then rejected the accumulated experience and suggestions of years without an effort to separate the necessities from the argumentative.

"It insists that one man devote himself year in and year out to keeping its finances on a sound basis and then denies him the tools which he needs to make this work more effective and less onerous. It elects men to office and then rudely annihilates the results of years of faithful service. It doesn't even take the trouble to read the recommendations of its servants.

"Can the Institute continue to command the conscientious efforts of its faithful members, can it realize its full promise of service to the profession and society, can it grow in influence and size, or can it even hold its own if it continues to proceed on such a basis? Does not the vaunted code of professional conduct apply to these homely matters?"

RE-DECORATES WITH "WALL KOVER"

A striking note of modernism has been achieved by the Hollywood Roosevelt Hotel in the redecorating of its suites, lobbies, dining rooms and other parts of the hostelry, through the use of Wall Kover.

This unusual wall finish, a product of General Paint Corporation, was chosen because of its great covering capacity and the smooth beauty which it imparts to surfaces to which it has been applied.

The newly decorated Roosevelt, in its picturesque Hollywood environment, typifies the increasing impetus of social activity which has followed the upturn in general business conditions throughout the country

Being in the center of the Hollywood theatrical and motion picture activity, the Roosevelt is a mecca for many notables from all over the world.

CIVIL ENGINEERS

Engineers will doubtless be interested in the following summary of transactions by the Board of Directors of the American Society of Civil Engineers at the Miami, Florida, meeting: * * *

A procedure was formulated for the defense of a member unjustly accused.

* * *

A change in grade of membership was proposed, this to be the same as with the Electrical Engineers and the Architects. This proposition with arguments for and against will soon be submitted to the members for vote.

* * *

The meeting at Portland, Oregon, in 1936 will have a Local Section membership conference and delegates will be paid five cents a mile one way by the Parent Society.

* * *

The net worth of the Society is $1,400,000. Dues amounting to $200,000 are collected annually; $350,000 is the annual net income expended. So far every dollar collected in dues $1.75 is spent.

COPPER OUTPUT IMPROVES

"A million pounds of copper and copper alloys is being consumed each week by the mechanical refrigeration and air conditioning industries," Bertram B. Caddle, secretary of the Copper & Brass Research Association of New York, estimates. "According to present consumption and taking any seasonal slump into consideration." Mr. Caddle states, "the total tonnage for the year should exceed 50,000,000 pounds.

"There has been a marked increase in sales by refrigeration and air conditioning industries since the extension of the amount insurable by Federal Housing Administration, under its modernization credit plan, to $50,000 which covers three large consuming markets for copper—commercial, residential and industrial properties. While these are comparatively new industries, they are using large tonnages of copper and its alloys because of their rust-proof qualities which enable them to give satisfactory service when used under severely corrosive conditions such as conveying water, freezing temperatures, air, etc."

KERN COUNTY SCHOOL

Ernest J. Kump, Fresno, has completed drawings for a one-story frame and stucco school building at Kettlemen, Kern County, to cost $25,000.

A SOUTHERN CALIFORNIA COUNTRY HOME
H. ROY KELLEY, ARCHITECT

APPRAISALS BY ARCHITECTS

Philip W. Kniskern, in the Architectural Forum, has this to say about appraisals:

Some architects have turned hopefully to real estate appraisal and by training and experience some make good appraisers. One piece of property can have several values, depending upon its use. For assessment purposes, wholesale methods must be applied to obtain uniformity between properties of similar character and location. One must strike an average for a district. For fire insurance, replacement value is the prime consideration. For lending, re-sale value is uppermost. For buying and selling, use and permanent value are major influences. Appraising is not a mathematical science, and although there have been many formulae aimed in appraisals, none has ever worked satisfactorily. Where the architect usually is weak is in knowledge of the market. There is no short cut to knowledge of this kind, nor formula to be followed. It simply means a persistent effort to know what is going on in buying and selling circles. Characteristics cannot and must not be considered nor their worth determined in relation to any particular individual, but we must consider them in respect to the average individual, for, when recourse is taken to the property as collateral, to realize upon, or liquidate it, the lender must deal with the general public under conditions as he finds them then existing, and cannot wait to deal with any particular individual. The value to be sought is that which can be developed by fair and reasonable selling energy over a reasonable short length of time and with sufficient substantial investment in the equity so that when accomplished it will be a complete permanent sale. To analyze the particular property under appraisal and to determine its characteristics, each must be considered from the viewpoint of utility, popularity, physical elements, suitability, supply and demand, appreciation, speculation, obsolescence and depreciation.

HOTELS YESTERDAY AND TODAY

Improvement in plumbing is the outstanding feature in the development of the American hotel in the past fifty years, according to one of a score or more special writers who contribute articles to the golden anniversary edition of the Hotel Red Book.

This writer, John Willy, himself a hotel publisher, was reporting for hotel papers back in 1886 when the first Hotel Red Book was issued.

Mr. Willy handles the "Construction and Equipment" phase of a series of articles under the general title of "Fifty Years ago and Now." He describes conditions in hotels as he found them at that period—coal stoves in the rooms, bowls and pitchers, gas illumination, public bath rooms on every floor, etc., etc.—and he particularly stresses the fact that nearly every hotel room of that day carried a sign, "Don't Blow Out The Gas."

Mr. Willy lists hundreds of improvements in hotel operation which were not in evidence 50 and 25 years ago.

Fully 90 per cent of the hotels in 1886 were conducted on the American Plan, meals furnished with rooms.

Architects will note with interest some of the things hotels offer today which were not offered fifty years ago:

Private baths in rooms, tub and shower, toilets, circulating ice water, steam or hot water heat, electric heat, room telephone service, radio, elevators, electric lights, one-day laundry service.

Music during the meal hour, dance music, cocktail lounges,twenty-four-hour room service, bus lines going in all directions at all hours of day or night, telegraph offices, brokers, beauty parlors, information desks; distributing maps and guides to assist travelers, theater ticket offices, air service, kitchenettes,electric refrigeration,fixtures for cooking by gas, electric fans, bed-head lamps, running hot and cold water, window screens, ceiling fans, snap locks on room doors, porter's desk for purchasing railroad tickets, etc., valet service; suits pressed in thirty minutes, hotel stores, uniformed bell boys, amplifier system for banquet speeches, etc., etc.

PLANNING FUTURE ART MUSEUMS

In an address given in the Art Institute of Chicago, Dr. Gustav Pauli, veteran European museum director and former director of the Hamburg Kunsthalle, discussed present-day art museums and the museums of the future, prefacing his comments with a glance into museum history through three periods: the museum of the prince; the museum of the student; the people's museum.

Dr. Pauli asked that in the design of new museums, experiences with old buildings be taken to heart, using such buildings partly as models, but also as a warning. He plead for smaller museums, "museums with unified contents and with an architecture that corresponds to the contents, for the

museum ought to avoid the possibility of being compared to a menagerie where all sorts of rare animals, elephants and giant snakes as well as humming birds are locked in under the same roof. The architecture and decoration should consider the art content of the room, but it should not imitate the exhibit. It is necessary to build chapels for the alterpieces of former centuries, but one should at least place them in large rooms with comparable, only better, lighting. It is not necessary to build Dutch living rooms for Rembrandt or Jan van Goyen, or halls of Venetian palaces for Titian or Tintoretto. In our museum of the future we need not disavow the architecture of our time, but at any rate we should strive to produce a harmony between the objects of the collection and their architectural frame."

For collections of sculpture there are already a few real models of new buildings, like the Glyptothek in Munich and the Thorwaldsen Museum in Copenhagen. In both cases, by a fortunate coincidence, the modern classicism of their architecture fitted in with the antique or classicistic character of their contents. The splendor of the Glyptothek contrasts with the accentuated simplicity of the Copenhagen building. Thorwaldsen was not one of the greatest artists, but his museum, with his grave in the middle of the center court, is the most beautiful monument ever erected to an artist. These museums have only one fault—they permit of no alteration.

The architectural museum looks to the future for its solution. In the nineteenth century, a century of declining architecture, it had just been forgotten. The rooms that were given over to architecture in earlier times, for instance in the British Museum, are by no means ideal, and the attempt that has been made in the Pergamon Museum in Berlin ought to be imitated. A sensational success is not always proof of value. Works of architecture, being more closely bound up with the place for which they were built than any other art, cannot be transplanted into a museum without serious loss. For architectural museums, then, large photographs are wanted, instructive colored reproductions of the buildings in the midst of their original surroundings and models on a reduced scale. In addition, in certain cases there may be exhibited real fragments of the buildings shown in the pictures and models, so that the material and its treatment may be studied intimately.

The smaller museum hoped for will serve the museum's objects as well as the convenience of the public. Of greatest importance is the lighting. The form of the window openings for toplight and sidelight must be rightly chosen in accordance with the character of the collection. The interior must reflect the time of the museum's erection, on the condition that it nowhere disturbs the impression given by the objects exhibited.—Bulletin, Illinois Society of Architects.

PASSING OF THE GARBAGE CAN

A new electrical device which grinds waste foods and thereby eliminates the garbage can from the home has been announced by P. B. Zimmerman, manager of the specialty appliance department of General Electric Company.

The device is installed beneath the kitchen sink and can be attached to existing sinks or sold in conjunction with a diswasher-sink ensemble. It grinds and pulpifies all waste foods, including citrus fruit skins, chicken bones and chop bones. Reduced to a fine pulp, this waste food is flushed by water and carried away as part of the sewage stream.

The grinder is a rugged high-speed device. Its speed, with the centrifugal action, results in aerating the food solids. The perfect aeration causes grease in the garbage to coagulate into compact particles and to pass through the pipes without coating or clogging.

Water used in the grinding and flushing process is almost negligible. It is estimated by company engineers that in any normal community the increase in the use of water because of this device will amount to but one per cent. The grinder will operate not more than five minutes a day in the average family and its average cost of operation per month will be about one-half that required for operating an electric clock.

The grinder is simple to operate. Directly beneath the sink is a convenient projecting handle by which the hopper of the grinder is closed and the motor is started. It is sealed against leakage, and the grinding elements are made of carboloy, a metal next to a diamond in hardness. The unit weighs about 75 pounds and can be installed under any style of sink as a part of the outlet plumbing. When not in use the hopper inlet is covered by a perforated cap, leaving the sink bottom flush and in condition for ordinary use.

The unit is driven by a 1-4 horsepower electric motor, which takes current from the ordinary 110-volt house circuit.

Tests of the unit have been made in the homes of sanitary engineers in selected cities throughout the country.

The introduction of this new device will doubtless mark the end of garbage. With the electric refrigerator, electric dishwasher, electric range and other electric kitchen appliances, this new waste eliminator is practically the last step in the all electric kitchen.

INSTITUTE CHAPTERS ASKED TO HELP FINANCE NATIONAL FUND

The various Institute Chapters have lately inaugurated a campaign to raise a fund for national expenses, in accordance with a plea issued by Stephen F. Voorhees, newly elected president of the Institute. In his appeal Mr. Voorhees says:

"It has become essential that we strengthen the Institute as a national society. It must be made more aggressive and more effective—in Washington and in the states and cities.

"In the leadership of the Institute to this end, I must have your support and frank advice. So, during the next twelve months, I shall call upon you frequently to give service to the Institute.

"Even though I am writing you by direction of the recent convention, I regret that my first call is for financial aid, but facts are real and we must accept them if we are to solve our problems rationally. Some of these facts, particularly those affecting the immediate purpose of this letter, are given in the attached memorandum.

"Will you kindly bring this matter to the attention of the members of your Chapter, preferably at a Chapter meeting, and take such steps as may be necessary to raise a specific amount on the basis of $2.00 for each Institute member of your Chapter.

"I am sending this appeal to each Chapter of the Institute and it is my sincere hope that each will respond with its quota."

In another communication addressed to the Chapters, President Voorhees says:

"Some facts about the internal affairs of the Institue were submitted to the delegates at the recent convention, and they took action in a resolution which is quoted herein.

"Disregarding details, I find certain conditions existing which must be remedied if the Institute is to be of real value to the individual architect and to the profession.

"They are epitomized as follows:

"Financial management has been excellent. Deficits have been avoided from year to year by cutting operations to keep pace with falling income. This process cannot be continued through the last half of 1935 without reducing national activities to a skeleton basis.

"The Proceedings of Conventions have not been published since 1931.

"The Annuary has not been published since 1932, except last year by the gift of a member.

"No funds are now available for publishing the Annuary or Proceedings for 1935.

"The semi-annual meetings of the Board, usually held in November, in cities other than Washington, have been ommitted since 1931.

"Since 1932, no appropriations have been available to send the Regional Directors on visits to their Chapters.

"Committee appropriations have been cut year by year until the average committee in 1935 has an appropriation of $15.00!

"The staff at The Octagon has been reduced from ten in 1932 to five as of this date.

"These economies have become so restrictive that the effectiveness of the Institute is now definitely impaired. This is particularly true in Washington, where the great expansion which has taken place in governmental agencies with which the Institute must deal in the interest of architects requires the services of an executive assistant, to be engaged largely on questions which concern the relation of the private architect to the Federal government. Also, at least one additional stenographer must be provided.

"To meet this crisis, the Convention took action as follows:

"'*RESOLVED*, That the Convention requests the Board of Directors to ask each of the constituent Chapters to contribute to the working funds of the Institute a sum equal to two dollars from each member of such Chapter, and further, to ask that such sums be made available for use by the Institute within the month of June of this year.'

"In order effectively to promote this program, the New York Chapter pledged itself to contribute $1.00 for every $2.00 contributed by all other Chapters, up to a total of $1,000 to be given by the New York Chapter. This offer was accepted from the floor by the Boston Chapter with a gift of $500, in addition to the $2.00 per capita to be raised by the Chapter. The Chicago Chapter also offered to make a substantial contribution.

"We are assured that as rapidly as checks are received, they will be matched by the New York Chapter with $1.00 for each $2.00 remitted—up to a limit of $1,000."

Resistance of Plastered Walls to Earthquake

by R. R. Martel in 'Conference Bulletin'

THE comparative immunity of wood frame residences to earthquake stresses was shown in the Long Beach earthquake. It is of interest to compute the order of magnitude of the horizontal forces which these structures can resist, not because of deliberate design for such stresses, but entirely as an incidental or inherent property of this type of construction. For simplicity, the house considered will be idealized. It will be assumed to be 28 by 28 feet square, consisting of four rooms, each 14 by 14 feet in plan and 9 feet in height. These dimensions are selected so that the house can be built up of wall panels of the size tested by the Forest Products Laboratory at Madison, Wisconsin. It will be assumed further that each panel has one door and one window opening, and is constructed with wood lath and plaster on 2 by 4 studs, without sheeting or diagonal bracing.

In a report on 'The Rigidity and Strength of Frame Walls," by George W. Thayer of the Forest Products Laboratory, it is stated that the longitudinal thrust to produce the first crack in such a panel plastered on one side only was 1300 pounds and that the rigidity of the panel was due to the plaster. The hypothetical house would have 12 such parallel plaster sheets to resist a horizontal force acting perpendicular to either the front or the side which gives a total value of 15,600 pounds. Taking the weight of the roof and ceiling at 20 pounds per square foot and the weight of the walls at the same figure, the total weight of roof, ceiling, and upper half of the walls is 30,800 pounds. The steady horizontal acceleration which this structure could resist before cracks appeared is then about ½G. The maximum load carried by the test panel was 4,200 pounds, which would give a resistance equivalent to an horizontal acceleration of over 1½G.

It is unnecessary to go farther than this rough analysis, to find the reason for the satisfactory earthquake resistance of the modest frame house.

The popular misconception that such a building derives its immunity from its elasticity is dispelled when it is realized that the plaster sheets in shear have about the same modulus of elasticity as a weak concrete.

SAN JOSE ARCHITECT BUSY

William E. Higgins, 19 North Second Street, San Jose, reports having completed plans for several residences, including a California-Colonial dwelling on Park Avenue; a two-story stucco dwelling in Salinas; a five-room house in East San Jose and a five-room house for William Byl.

BOOK REVIEWS

By Edgar A. Kierulff

MANUAL OF ACCOUNTING FOR ARCHITECTS: By The American Institute of Architects: (Standard Document No. 978.)

A very concise and accurate manual of accounting, prepared for the use of the practicing architect. Within it's covers will be found all the information necessary for the keeping of a set of architectural cost records and for the proper functioning of an architect's business office.

As is the case with many professional men, so it is with the architect. He does not always have the business training necessary to run his office on established lines of accepted procedure.

This book solves the problems arising from contracts, specifications, bad debts, collections, and other very important and vital questions which must be met in daily practice. A book that should be in every architectural office.

22 LOW COST CONCRETE HOMES

"Twenty-two Low Cost Concrete Homes," published by Portland Cement Association, suggests 22 new designs for all types of small concrete masonry homes. Modern and formal styles are included for cottage, bungalow and two-story dwellings, four to six rooms in size. Floor arrangement and front elevation sketch illustrate each design description. To further visualize the type of homes anticipated by the plan suggestions, the booklet includes a seven-page pictorial section showing recently built concrete masonry homes; concrete home interiors; and concrete for garden and landscape use.

The various finishes for masonry homes are described on two pages, one devoted to Portland cement stucco, and another to concrete ashlar wall patterns. Profusely illustrated throughout, this new booklet contains 32 pages bound in heavy paper cover.

GOVERNOR SIGNS CONTRACTOR'S BILL

Senate Bill 596, amending the California State Contractor's Act to provide for its administration by a board of seven members instead of by the director of professional and vocational standards as "Registrar of Contractors," which passed the California Legislature June 14, was signed by the governor on July 20, and will become effective September 16, 1935. Full text of the bill was printed in The Architect and Engineer last month.

The new board must be appointed within 30 days after the law becomes effective and another

30 days will probably elapse before the board is formally organized and names an executive officer who will have the title of Registrar of Contractors. All members of the board must be contractors actively engaged in business at the time of their appointment and for 5 years previous. They will serve without pay, but will receive a reasonable allowance for their expenses when attending meetings.

Under the new law, contractors will be classified and registered as engineering, building and specialty contractors. The board will consist of one engineering, three building and three specialty contracors, and they must continue in active business during their respective terms.

WILLIAM MULHOLLAND

The recent passing of William Mulholland removes a man dynamic and useful in the engineering profession second only to the late M. M. O'Shaughnessey of San Francisco and Hetch-Hetchy fame.

William Mulholland passed away at his home, 226 South Saint Andrews Place, Los Angeles, July 22. He had been critically ill since last December. He would have celebrated his 80th birthday had he lived to next September 11.

Born in Belfast, Ireland, Mr. Mulholland was educated in the public schools and later attended Christian Brother's College in Dublin. While in his teens he shipped before the mast out of Liverpool, England, and after visiting many of the world's ports, landed in America in 1872.

After six years on the docks and steamers of the Great Lakes, and the sidewheelers that plied the Colorado, and prospecting for gold in Arizona, he came to California. In 1877 he decided to cast his lot in Los Angeles, then a town of 10,000 population. He obtained employment as zanjero, or ditch tender, with the City Water Company, which served Los Angeles with water. Having ambition to become an engineer, he spent his spare time studying mathematics, civil engineering and hydraulics.

Promoted from one position to another, Mulholland became superintendent of the City Water Company in 1888. When the city took over the water works in 1902 he became the chief engineer. He understood perhaps better than anyone else the value of water to this semi-arid region and the necessity of providing an adequate supply to assure the continued growth and development of the city. Realizing that the Los Angeles River, then the only immediate source of supply, could not meet the city's future needs, he began a persistent search for new sources of supply. As the builder of the Owens River Aqueduct, for which project the city voted a total of $24,500,000 bonds, he won world renown.

PARIS INTERNATIONAL EXHIBITION

The sixty-seventh International Exhibition to be held in Paris in 1937 will be devoted to Arts and Technics in Modern Life. It will be a demonstration of the efforts made by every nation in the world toward new standards of living, materially and morally, according to the conditions created by the present economic crisis.

It will open in May, 1937, and will last six months. The scope of the exhibition includes 14 groups divided into 75 classes.

The site is one of the most beautiful central parts of the city with the River Seine as its main artery on a length of two miles.

The French Government (Ministry of Commerce) and the City of Paris are cooperating in its construction which involves:

1. About 1,000,000,000 francs in permanent city planning and architectural improvements;

2. About 320,000,000 francs in temporary construction and garden settings.

The foreign nations are invited to show their achievements in National planning, education, protection of public health, modern arts, technics and all activities where art and science are intimately associated.

The area appropriated for the exhibition covers

DALMO-PINECRAFT
FACTORY ASSEMBLED ▾ PRECISION FITTED
Automatic AWNING TYPE Windows

Shipped ready to install! Ready to provide the best of controlled illumination and draftless all-weather ventilation. Made in one, two, and three-sash units. Multiple sash fully automatic . . . all vents operated collectively by motion of lower sash, which disconnects for independent operation, and reconnects without use of manually operated clutches.

Write for Details and Architect's Specifications

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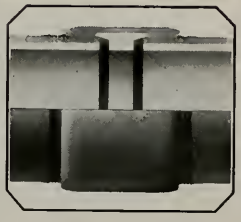
Manufacturers of Precision Sash and Frames for 25 Years.

Have you considered DUROLINE PIPE for hot and cold water lines?



Section of National DUROLINE Pipe coupling and joint. (Note special highly corrosion-resistant joint compound on end of pipe and on threads.)

More and more Duroline Pipe is being used for hot- and cold-water supply lines in public buildings, hospitals, schools and residences. Numerous service tests and increasing installations the country over are proving its worth for actually *preventing* corrosion. The highly improved Duroline cement lining was developed for the very purpose of eliminating any corrosion resulting from waters and certain solutions that attack unprotected pipe metal. Duroline Pipe, therefore, merits the careful consideration of architects, engineers, and contractors in the building trade. Where it is used, corrosive waters never touch the pipe metal and no destructive action takes place. Absolute freedom from interior corrosion and tuberculation is obtained, together with all the other desirable features of NATIONAL Steel Pipe. And remember, the extra cost of this pipe is nominal—just a trifle higher than galvanized pipe. A bulletin describes in detail the development and advantages of Duroline Pipe. Write for it today!

NATIONAL TUBE COMPANY · Pittsburgh, Pa.
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United States Steel Corporation Subsidiary

90 acres, not including the many parts which will be installed on the river itself.

Twenty-two converging avenues and several existing subway lines lead to the exhibition site.

The different exhibits will be presented in a new way, more picturesque, colorful and lively than at any previous exhibition. The various productions will be shown in their logical settings, in shops and working places, opening on streets and gardens and giving the appearance of a city of the future where commercial districts would be laid out for the pleasure of visitors and buyers.

The principal aim of the exhibition is to emphasize the craftsmanship for which particular efforts are made to re-educate the artisans as one of the remedies to the evils of mass production.

A demonstration will also be given that taste and art are not the privilege of the rich and that beautiful things can be created for consumers of moderate means.

Night illumination will be one of the features, as well as a comprehensive color plan for all the buildings.

Transportation by rail, water, road and air will reveal the latest developments and progress along these lines in a vivid presentation where most of the mechanical devices will be shown in action.

Advertising, broadcasting and television are included in the scope of the exhibition and will be exhibited in a new steel and glass palace built at the base of the Eiffel Tower.

The foreign sections will be the guests of honor and will occupy the very center of the exhibition.

The invited nations may participate in all or any of the following ways:

1. Official pavilions (the site being free of cost), in which the nations will show their typical architecture, and decorations made by their painters and sculptors. The official exhibits may consist of large scale models and plans of the great achievements in national planning, city planning and monumental architecture. For instance, nothing would be admired more than a large model of the Mall and of the great public works recently carried out in the United States. An extensive display of the results obtained in the development of Education and Science as well as the protection of Public Health and Housing, would make the official exhibits more interesting.

2. Private pavilions built by important industrial and commercial firms;

3. Smaller exhibits classified in halls or general pavilions which will be built at the expense of the French Commission and in which floor space will be given free of charge to the exhibitors.

4. Only the exhibitors who will want to have sales rooms, restaurants or other concessions for commercial purposes during the exhibition, wil have to pay rental for the space occupied.

Estimator's Guide

Giving Cost of Building Materials, Wage Scale, Etc.

In many instances NRA prices are still in force. Another month may find some material changes in price quotations. A 10% raise is being considered. Amounts quoted are figuring prices and are made up from average quotations furnished by material houses to three leading contracting firms of San Francisco.

NOTE—Add 2½% Sale Tax on all materials but not labor.

All prices and wages quoted are for San Francisco and the Bay District. There may be slight fluctuation of prices in the interior and southern part of the state. Freight cartage, at least, must be added in figuring country work.

Bond—1½% amount of contract.

Brickwork—

Common, $35 to $40 per 1000 laid. (according to class of work).

Face, $75 to $90 per 1000 laid, (according to class of work).

Brick Steps, using pressed brick, $1.10 lin. ft.

Brick Walls, using pressed brick on edge, 60c sq. ft. (Foundations extra.)

Brick Veneer on frame buildings, $ .75 sq. ft.

Common, f.o.b. cars, $15.00 job cartage.
Face, f.o.b. cars, $45.00 to $50.00 per 1000, carload lots.

HOLLOW TILE FIREPROOFING (f.o.b. job)

3x12x12 in.	$ 84.00 per M
4x12x12 in.	94.50 per M
6x12x12 in.	126.00 per M
8x12x12 in.	225.00 per M

HOLLOW BUILDING TILE (f.o.b. job)
carload lots.

8x12x5½	$ 94.50
6x12x5½	73.50

Discount 5%.

Composition Floors—18c to 35c per sq. ft. In large quantities, 16c per sq. ft. laid.

Mosaic Floors—80c per sq. ft.

Duraflex Floor—23c to 30c sq. ft.

Rubber Tile—50c per sq. ft.

Terazzo Floors—45c to 60c per sq. ft.

Terazzo Steps—$1.60 lin. ft.

Concrete Work (material at San Francisco bunkers)—Quotations below 2000 lbs. to the ton, $2.00 delivered.

No. 3 rock, at bunkers	$1.65 per ton
No. 4 rock, at bunkers	1.65 per ton
Elliott top gravel, at bnkrs.	1.75 per ton
Washed gravel, at bunkrs.	1.75 per ton
Eliott top gravel, at bunkrs.	1.75 per ton
City gravel, at bunkers	1.40 per ton
River sand, at bunkers	1.50 per ton
Delivered bank sand	.120 cu. yd.

Note—Above prices are subject to discount of 10c per ton on invoices paid on or before the 15th of month, following delivery.

SAND

Del Monte, $1.75 to $3.00 per ton.
Fan Shell Beach (car lots, f.o.b. Lake Majella), $2.75 to $4.00 per ton.

Cement, $2.25 per bbl. in paper sks.
Cement (f.o.b. Job. S. F.) $2.90 per bbl.
Cement (f.o.b. Job, Oak.) $2.90 per bbl.
Rebate of 10 cents bbl. cash in 15 days.

Calaveras White	$6.00 per bbl.
Medusa White	$8.00 per bbl.

Forms, Labors average 25.00 per M
Average cost of concrete in place, exclusive of forms, 30c pe rcu. ft.

4-inch concrete basement floor	12½c to 14c per sq. ft.
4½ inch Concrete Basement floor	14½c to 16c per sq. ft.
2-inch rat-proofing	6½c per sq. ft.
Concrete Steps	$1.25 per lin. ft.

Dampproofing and Waterproofing—

Two-coat work, 15c per yard.
Membrane waterproofing—4 layers of saturated felt, $4.00 per square.
Hot coating work, $1.80 per square.
Medusa Waterproofing, 15c per lb., San Francisco Warehouse.

Electric Wiring—$12.00 to $15.00 per outlet for conduit work (including switches).
Knob and tube average $7.00 per outlet, including switches.

Elevators—

Prices vary according to capacity, speed and type. Consult elevator companies. Average cost of installing an automatic elevator in four-story building, $2800; direct automatic, about $2700.

Excavation—

Sand, 50 cents; clay or shale, 80c per yard.
Teams, $10.00 per day.
Trucks, $18 to $25 per day.
Above figures are an average without water. Steam shovel work in large quantities, less; hard material, such as rock will run considerably more.

Fire Escapes—

Ten-foot balcony, with stairs, $75.00 per balcony average.

Glass (consult with manufacturers)—

Double strength window glass, 15c per square foot.
Quartz Lite, 50c per square foot.
Plate 75c per square foot.
Art $1.00 up per square foot.
Wire (for skylights), 35c per sq. foot.
Obscure glass, 26c square foot.

Note—Add extra for setting.

Heating—

Average, $1.90 per sq. ft. of radiation according to conditions.

Iron — Cost of ornamental iron cast iron etc., depends on designs.

Lumber (prices delivered to bldg. site).

No. 1 common	$33.00 per M
No. 2 common	27.00 per M
Selection O. P. common	37.00 per M
2x4 No. 3 form lumber	17.00 per M
1x4 No. 2 flooring VG	48.00 per M
1x4 No. 3 flooring VG	42.00 per M
1x6 No. 2 flooring VG	48.00 per M
1¼x4 and 6, No. 2 flooring	52.00 per M

Slash grain—

1x4 No. 2 flooring	$39.00 per M
1x4 No. 3 flooring	34.00 per M
No. 1 common run T. & G.	30.00 per M
Lath	5.00 per M

Shingles (add cartage to price quoted)—

Redwood, No. 1	$1.00 per bdle.
Redwood, No 2	.80 per bdle.
Red Cedar	.95 per bdle.

Hardwood Flooring (delivered to building)—

13-16x3¼" T & G Maple			$120.00 M ft.
1 1-16x2¼" T & G Maple			132.00 M ft.
⅞x3½ sq. edge Maple			140.00 M ft.
	13-16x2¼" T&G	⅜x2" T&G	5-16x2" Sq.Ed.
Clr. Otd. Oak	$200.00 M	$150.00 M	$180 M
Sel. Otd. Oak	140.00 M	120.00 M	135 M
Clr. Pla. Oak	135.00 M	107.00 M	120 M
Sel. Pla. Oak	120.00 M	88.00 M	107 M
Clear Maple	140.00 M	100.00 M	
Laying & Finishing	13c ft.	11 ft.	10 ft.

Wage—Floor layers, $7.50 per day.

Building Paper—

1 ply per 1000 ft. roll	$3.50
2 ply per 1000 ft. roll	5.00
3 ply per 1000 ft. roll	6.25
Brownskin, 500 ft. roll	4.20
Pro-tect-o-mat, 1000 ft. roll	12.00
Sisalkraft, 500 ft. roll	5.00
Sash cord com. No. 7	$1.20 per 100 ft.
Sash cord com. No. 8	1.50 per 100 ft.
Sash cord spot No. 7	1.90 per 100 ft.
Sash cord spot No. 8	2.25 per 100 ft.

Sash weights cast iron, $50.00 ton.
Nails, $3.50 base.
Sash weights, $45 per ton.

Millwork—

O. P. $100.00 per 1000. R. W. $106.00 per 1000 (delivered).

Double hung box window frames average, with trim, $6.50 and up, each.

Doors, including trim (single panel 1¾ in. Oregon pine) $8.00 and up, each.

Doors, including trim (five panel 1¾ in. Oregon pine) $6.50 each.

Screen doors, $4.00 each.

Patent screen windows, 25c a sq. ft.

Cases for kitchen pantries seven ft. high per lineal ft., $6.50 each.

Dining room cases, $7.00 per lineal foot.

Labor—Rough carpentry, warehouse heavy framing (average), $12.00 per M.

For smaller work average $27.50 to $35.00 per 1000.

Marble—(See Dealers)

Painting—

Two-coat work	29c per yard
Three-coat work	40c per yard
Cold Water Painting	10c per yard
Whitewashing	4c per yard

Turpentine, 80c per gal., in cans and 75c per gal. in drums.
Raw Linseed Oil—80c gal. in bbls.
Boiled Linseed Oil—85c gal. in bbls.
Medusa Portland Cement Paint, 20c per lb.

Carter or Dutch Boy White Lead in Oil (in steel kegs).

	Per Lb.
1 ton lots, 100 lbs. net weight	10 3/4c
500 lbs. and less than 1 ton lots	11c
Less than 500 lb. lots	11 1/2c

Dutch Boy Dry Red Lead and Litharge (in steel kegs).

1 ton lots, 100 lb. kegs, net wt.	10 3/4c
500 lb. and less than 1 ton lots	11c
Less than 500 lb. lots	11 1/2c

Red Lead in Oil (in steel kegs)

1 ton lots, 100 lb. kegs, net. wt.	12 1/2c
500 lb. and less than 1 ton lots	12 1/2c
Less than 500 lb. lots	13c

Note—Accessibility and conditions cause wide variance of costs.

Patent Chimneys—

6-inch	$1.00 lineal foot
8-inch	1.50 lineal foot
10-inch	1.75 lineal foot
12-inch	2.00 lineal foot

Plastering—Interior—

	Yard
1 coat, brown mortar only, wood lath	$0.60
2 coats, lime mortar hard finish, wood lath	.70
2 coats, hard wall plaster, wood lath	.80
3 coats, metal lath and plaster	1.25
Keene cement on metal lath	1.30
Ceilings with 3/4 hot roll channels metal lath	.75
Ceilings with 3/4 hot roll channels metal lath plastered	1.50
Shingle partition 3/4 channel lath 1 side	.85
Single partition 3/4 channel lath 2 sides 2 inches thick	2.75
4-inch double partition 3/4 channel lath 2 sides	1.30
4-inch double partition 3/4 channel lath 2 sides plastered	3.00

Plastering—Exterior—

	Yard
2 coats cement finish, brick or concrete wall	$1.10
2 coats Atlas cement, brick or concrete wall	1.35
3 coats cement finish, No. 18 gauge wire mesh	1.50
3 coats Medusa finish, No. 18 gauge wire mesh	2.00

Wood lath, $5.50 per 1000.
2.5-lb. metal lath (dipped) .17
2.5-lb. metal lath (galvanized) .20
3.4-lb. metal lath (dipped) .22
3.4-lb. metal lath (galvanized) .28
3/4-inch hot roll channels, $72 per ton.
Finish plaster, $18.90 ton; in paper sacks.
Dealer's commission, $1.00 off above quotations.
$13.85 (rebate 10c sack).
Lime, f.o.b. warehouse, $2.25 bbl.; cars, $2.15
Lime, bulk (ton 2000 lbs.), $16.00 ton.
Wall Board 5 ply, $50.00 per M.
Hydrate Lime, $19.50 ton.

Plasterers Wage Scale	$1.25 per hour
Lathers Wage Scale	1.25 per hour
Hod Carriers Wage Scale	1.10 per hour

Composition Stucco—$1.60 to $2.00 sq. yard (applied).

Plumbing—

From $65.00 per fixture up, according to grade, quantity and runs.

Roofing—

"Standard" tar and gravel, $6.00 per sq. for 30 sqs. or over.
Less than 30 sqs. $6.50 per sq.
Tile, $20.00 to $35.00 per square.
Redwood Shingles, $11.00 per square in place.
Cedar Shingles, $10 sq. in place.
Recoat, with Gravel, $3.00 per sq.
Slate, from $25.00 to $60.00 per sq. laid, according to color and thickness.

Sheet Metal—

Windows—Metal, $2.00 a sq. foot.
Fire doors (average), including hardware, $2.00 per sq. ft.

Skylights—

Copper, 90c sq. ft. (not glazed).
Galvanized iron, 25c sq. ft. (not glazed).

Steel—Structural

$100 ton (erected), this quotation is an average for comparatively small quantities. Light truss work higher. Plain beams and column work in large quantities $80 to $90 per ton cost of steel; average building, $89.00.

Steel Reinforcing—

$85.00 per ton, set, (average).

Stone—

Granite, average, $6.50 cu. foot in place.
Sandstone, average Blue, $4.00, Boise, $3.00 sq. ft. in place.
Indiana Limestone, $2.80 per sq. ft. in place.

Store Fronts—

Copper sash bars for store fronts, corner, center and around sides, will average 75c per lineal foot.
Note—Consult with agents.

Tile—Floor, Wainscot, Etc.—(See Dealers).

SAN FRANCISCO BUILDING TRADES WAGE SCALE

Established by The Impartial Wage Board November 9, 1932. Effective on all work January 1, 1933, to remain in effect until June 30, 1933, and for so long thereafter as economic conditions remain substantially unchanged.

This scale is based on an eight-hour day and is to be considered as a minimum and employees of superior skill and craft knowledge may be paid in excess of the amounts set forth herein.

CRAFT	Journeyman Mechanics
Asbestos Workers	$6.40
Bricklayers	9.00
Bricklayers' Hodcarriers	5.60
Cabinet Workers (Outside)*	7.20*
Caisson Workers (Open) Water Work	8.00
Carpenters	7.20*
Cement Finishers	7.20
Cork Insulation Workers	7.20
Electrical Workers	8.00
Electrical Fixture Hangers	7.00
Elevator Constructors	8.68
Elevator Constructors' Helpers	6.08
Engineers, Portable and Hoisting	8.00
Glass Workers (All Classifications)	6.80
Hardwood Floormen	7.20*
Housemovers	6.40
Housesmiths, Architectural Iron (Outside)	7.20
Housesmiths, Reinforced Concrete, or Rodmen	7.20
Iron Workers (Bridge and Structural)	$9.60
Iron Workers (Hoisting Engineers)	10.00
Laborers (6-day week)	5.00
Lathers, Channel Iron	8.00
Lathers, All Other	6.80
Marble Setters	8.00
Marble Setters' Helpers	5.00
Millwrights	7.20*
Mosaic and Terrazzo Workers (Outside)	7.20
Mosaic and Terrazzo Helpers	5.00
Painters	7.00
Painters, Varnishers and Polishers (Outside)	7.00
Pile Drivers and Wharf Builders	8.00
Pile Drivers Engineers	9.00
Plasters and Hodcarriers (See wage scale under Plastering).	
Plumbers	8.00
Roofers (All classifications)	6.40
Sheet Metal Workers	7.20
Sprinkler Fitters	9.00
Steam Fitters	8.00
Stair Builders	$7.20*
Stone Cutters, Soft and Granite	6.80
Stone Setters, Soft and Granite	8.00
Stone Derrickmen	7.20
Tile Setters	8.00
Tile Setters' Helpers	5.00
Tile, Cork and Rubber	7.20
Welders, Structural Steel Frame on Buildings	9.60
Welders, All Others on Buildings	8.00
Auto Truck Drivers—Less than 2,500 lbs.	5.50
Auto Truck Drivers—2,500 lbs. to 4,500 lbs.	6.00
Auto Truck Drivers—4,500 lbs. to 6,500 lbs.	6.50
Auto Truck Drivers—6,500 lbs. and over	7.00
General Teamsters, 1 Horse	5.50
General Teamsters, 2 Horses	6.00
General Teamsters, 4 Horses	6.50
Plow Teamsters, 4 Horses	6.50
Scraper Teamsters, 2 Horses	6.00
Scraper Teamsters, 4 Horses	6.00

*Established by Special Board

GENERAL WORKING CONDITIONS

1. Eight hours shall constitute a day's work for all crafts, except as otherwise noted.
2. Where less than eight hours are worked pro rata rates for such shorter period shall be paid.
3. Plasterers' Hodcarriers, Bricklayers' Hodcarriers, Roofers' Laborers and Engineers, Portable and Hoisting, shall start 15 minutes before other workmen, both at morning and at noon.
4. Five days, consisting of not more than eight hours a day, on Monday to Friday inclusive, shall constitute a week's work.
5. The wages set forth herein shall be considered as net wages.
6. Except as noted the above rates of pay apply only to work performed at the job site.
7. Transportation costs in excess of twenty-five cents each way shall be paid by the contractor.
8. Traveling time in excess of one and one-half hours each way shall be paid for at straight time rates.
9. Overtime shall be paid as follows: For the first four hours after the first eight hours, time and one-half. All time thereafter shall be paid double time. Saturday (except Laborers), Sundays and Holidays from 12 midnight of the preceding day, shall be paid double time. Irrespective of starting time, overtime for Cement Finishers shall not commence until after eight hours of work.
10. On Saturday Laborers shall be paid straight time for an eight-hour day.
11. Where two shifts are worked in any twenty-four hours, shift time shall be straight time. Where three shifts are worked, eight hours' pay shall be paid for seven hours on the second and third shifts.
12. All work, except as noted in paragraph 13, shall be performed between the hours of 8 A. M. and 5 P. M.
13. In emergencies, or where premises cannot be vacated until the close of business, men reporting for work shall work at straight time. Any work performed on such jobs after midnight shall be paid time and one-half up to four hours of overtime and double time thereafter (provided, that if a new crew is employed on Saturdays, Sundays or Holidays which has not worked during the five preceding working days, such crew shall be paid time and one-half. No job can be considered as an emergency job until it has been registered with the Industrial Association and a determination has been made that the job falls within the terms of this section).
14. Recognized holidays to be: New Year's Day, Decoration Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Christmas Day.
15. Men ordered to report for work, for whom no employment is provided shall be entitled to two hours' pay.
16. This award shall be effective in the City and County of San Francisco.

NOTE: Provision of paragraph 13 appearing in brackets ( ) does not apply to Carpenters, Cabinet Workers (Outside), Hardwood Floormen, Millwrights, or Stair Builders.

During the exhibition, many conventions will be organized with regard to Science, National planning, City planning, Architecture, Applied Arts, Building devices and Materials, Furniture, Mechanics, Photography, Radio, Cinema, Theatrical equipment, Advertising art, Fashions, etc.

WORK OF STATE PLANNING BOARD

Speaking at a recent meeting of the Construction Industries Committee of the Los Angeles Chamber of Commerce, L. Deming Tilton, director of the State Planning Board of California, told of the Board's purpose and activities and then added:

"I must emphasize in all fairness to the board that we do not know all we ought to know about our own purposes. Not very many instructions have come to us as yet—we learn a little now and then about what we are expected to do by reading the newspapers."

Speaking of the Federal Public Works-Relief Program now being instituted, Mr. Tilton continued:

"The problem of spending $4.000.000.000 is a much bigger problem than is generally realized. It seems as though it should be easy! Many of you know that sometimes it is a simple business—getting rid of a hundred million dollars—but when you stop to think of the responsibility to the public in the appropriation of this money, you will find there is a real problem to it. How four billion dollars will be apportioned over a nation as large as this for the purpose of adding to the collective achievement of the nation and contributing definitely to the tangible security of the country—that is the primary object of this expenditure as the planner sees it. The primary object as it is viewed from the standpoint of social service is taking care of the suitable employment of thousands who are now on relief.

"To those of us concerned with planning, it is proposed by means of planning—of fact gathering, of analyzing our common problems and laying out a program—to get at these problems, to effect the relief of unemployment conditions and bring about results which we can face with pride. Mr. Hoover away back in 1920, before the engineers of Minnesota at Minneapolis, called attention to the need of establishing some sort of national planning agency for the purpose of developing a long-range program of co-ordinating the activities of agencies of the government engaged in construction, but it was to fall to the Roosevelt administration to set up some guide. When planning really came into its own as a positive agency, the President first appointed a national planning board which developed into the National Resources Board by engaging a staff of its own in Washington to study land utilization, problems of water conservation, flood control, etc. They produced two very extensive reports.

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"That work has continued. As a part in these activities the National Resources Board urged the establishment of state planning boards in all states so that there would not be an attempt on the part of the national government to undertake too much of a job—so that each state could analyze the problems within its own borders—a considerable degree of responsibility. Therefore, the National Resources Board offered as a little inducement to the states a certain money appropriation if the state would get to work. Thus, California received authorization to set up its own planning board and the state put up a small sum of money to provide for the initial activities.

"The board was appointed along in March of last year and has been in operation a little over a year. It was October of last year before we could get any appropriation for the employment of full-time workers to enable us to get under way. We thought we would operate from Sacramento—then San Francisco, but finally, in order to get a staff under the S.E.R.A., we came to Los Angeles. Through the good offices of the Los Angeles Chamber of Commerce we have been provided with very adequate space and today we are carrying on with an S.E.R.A. staff, with another small staff operating at Sacramento on some particular phases of our activities.

"A bill in the state legislature establishing the State Planning Board has passed and the Governor has signed it. The bill provides for the appointment of five members by the Governor, and three ex-officio members—the director of state finance, director of public works, and the director of the National Resources Board. Under the direct management of the director of finance, the board is given definite authority. Its duties are defined, among other things, to have authority to co-operate with any organization and all organizations within the state in developing the natural resources of the state. It is authorized to accept gifts and grants from the Federal government. This ties the work in with the broad and constructive work of the National Resources Board.

"The National Resources Board has presented a bill in Congress calling for the creation of a National Planning Board. This National Planning Board will take over the problem of co-ordinating all activities which have to do with the entire nation, through having in each state a co-operating agency called the State Planning Board—in sime measure forming a liaison of co-ordination through the State Planning Board with Washington. That is the set-up of the State Planning Board in relation to the business of national planning.

"It is somewhat difficult to define the scope of the State Planning Board—details may come out later. As I have indicated, it has its specific duties

primarily based upon national resources and economic resources and fundamental needs of the people. The State Planning Board is going to study the present pattern of the State of California as it has developed in the very short 150 years of occupation by white people. Already in the brief moment of 150 years there has been a certain pattern stamped upon this state—agriculture, cattle raising in the sunny valleys, industrial and urban development in this and the San Francisco Bay region—through all these contributing elements the pattern has come about.

"The State Planning Board is going to undertake to formulate some broad plan for the further growth and development of the state's natural resources—to make the state of California safe to live in—easy to live in from the standpoint of making a living—to see that the money is spent wisely and for purposes that will appeal to the citizens and taxpayers, justifying the expense.

"It is not possible to say that the State Planning Board is going to have this or that authority in the new program. The State Planning Board was forced to make a public works inventory with the object of culling from that a list of work projects. Certain principles and certain broad policies having to do with the development of the state have been embodied in this report, which has been sent back to the National Resources Board.

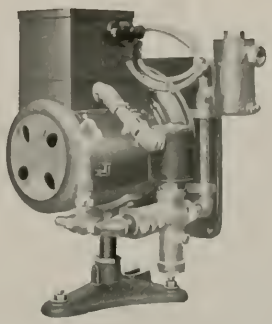
"California is one of some thirty-five states that have established state planning boards. It is necessary in the present emergency to bring about maximum benefits from the expenditure of the administration's $4,800,000,000 Public Works fund. Our work is centered about how much we can reasonably expect on the basis of population and area and present unemployment and relief loads, and the proper spending of these allocations."

BUILDERS BUSY IN WEST

An increase of more than 106 per cent in permits issued for the construction of one and two-family houses in Los Angeles, was recorded during the first six months of this year by the Bureau of Labor Statistics. During the first half of 1935, 1,329 permits for buildings housing four families or less, totaling $5,010,873 were listed, as opposed to 732 permits totaling $2,430,265 for the same months last year.

GEO. W. BULLARD

George W. Bullard, veteran Tacoma architect, died May 30 from injuries suffered two days earlier when he was run down by a street car. He had practiced architecture in Tacoma continuously since 1890, and was the first president of the Washington State Chapter, A.I.A.



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SAN FRANCISCO TERMITE SURVEY

Dry-wood termites have been found in the region of Golden Gate Park and the Richmond District, San Francisco, during the past month. In fact, Kalotermes were found swarming from one of these colonies on July 29th. They have been found in an area approximately two miles in length. These termites were not reported in the survey conducted by the Termite Investigations Committee.

This specie of termites does not require ground connection, but may fly through the ventilators into the attic space of a building and destroy the roof structure. The name "dry-wood termite" comes from the fact that they live and colonize in dry wood.

The inspection of buildings in the area south of Market Street, from the Embarcadero to Fourth Street, and from Fourth Street to Channel Street and the Bay, has been approximately completed, including 475 wood frame buildings, 531 Class "C" buildings, and 119 class "A" buildings, that is, fireproof structures. Since part of this district is in the area where the utility services are placed underground and part of the area served by overhead wires, there were 291 utility poles included in the inspection.

Ninety per cent of the wood frame structures were found to be infested by some form of wood-destroying organisms; 40 per cent of the class "C" buildings (that is, masonry walls and wood frame), were so infested; and in 25 per cent of the fireproof structures, cellulose-containing materials were found to be damaged.

The utility poles as a whole were found to be in the best condition of all structures inspected. Only 21 per cent of the poles were found to be infested by wood-destroying organisms.

TACOMA DRAFTSMEN'S CLUB

Study of concrete construction has been occupying the attention of members of the Tacoma Draftsmen's Club during the past school year. John G. Richards, licensed architect employed in the Heath, Gove and Bell office, served as instructor. The sessions were held on Wednesday evenings at the Jason Lee Intermediate School as an adult education under WERA auspices. Further study is being outlined for the next school year. Maulden Jacobson is president of the club.

RICHMOND RESIDENCE

Plans have been completed by John Hudson Thomas, 31 Norwood Avenue, Berkeley, for a seven-room English style dwelling to be built in Mira Vista Highlands, Richmond, for A. F. Adcock.

CUT HOUSE IN TWO

A press dispatch from Oklahoma city describes the sawing in half of a pretentious home in order that a loan company might take possession of a lot and part of the house under a mortgage foreclosure.

The house was built by the late W. M. Chadwick and his wife, Fern. At the time of construction the local Federal Savings and Loan Association took a mortgage covering lot 16, block 35, Linwood Place Addition, and the improvements on it. Later the Chadwicks added a 16-foot extension on the house which was placed on adjacent lot 15, which was not covered by a mortgage.

The loan company bought the house at sheriff's sale. District Judge Ben Arnold approved the sale and gave possession to the loan company.

Deputy Sheriff Ross Biggers reported that Mrs. Chadwick, now a widow, had moved her possessions into the extension of the house built on lot 15.

So the company decided to cut the house in two.

NEW ADVISORY MEMBER

Erle L. Cope, superintendent of building inspection for San Francisco, has been appointed member of the State Advisory Committee on reconstruction of school buildings under the Field act. The appointment was made by Earl Lee Kelly, State Director of Public Works.

The other members are Will G. Corlett, Oakland; Walter Steilberg, Berkeley; L. H. Nishkian, San Francisco; Professor R. R. Martel, Pasadena; David H. Merrill, Myron Hunt and Roy C. Mitchell, Los Angeles. All are structural engineers or architects.

BID SAME AS ENGINEER'S ESTIMATE

A low bid identical with the engineer's estimate was recently submitted to the U. S. Bureau of Public Roads by J. A. Casson of Hayward, for a surfacing contract on the Lava Beds National Forest Highway in Modoc County. Casson's bid was $29,698.80 and his figures for each of four items in the proposal coincided with those of the Engineer's estimate.

PERSONAL

Stanley T. Shaw, architect of Spokane, recently returned to that city after visiting his brother, Frederic Shaw of San Francisco.

N. Lester Troast, architect of Juneau, Alaska, and member of the Washington State Chapter, A.I.A., has returned to his home office after spending several months at Nome conferring with Federal officials regarding plans for the construction of a new Federal Building at the far Alaskan city.

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LEGAL FACTS
By Henry M. Gottlieb

To the Architect: Do you know what your rights are when you prepare plans and specifications and the general preliminaries pertaining to the plan, costs, size and material to be used in a project and the owners arbitrarily cancel the contract after approving your work?

The following illustrates this situation.

A firm of architects contracted with the owners of a lot to prepare plans and to finance and supervise the construction of an apartment house on the owner's lot. The architects were also to take bids upon approval of the plans and specifications by the owners.

The owners gave approval of the architect's work as it progressed and final drawings were already in the hands of bidders when the owners refused to pay the architects. They began to find fault with the work and stated that the plans were not to their complete satisfaction, and that they would not approve them.

The court found the owners guilty of bad faith in breaching this contract and held that even those owners who did not actually sign the written contract were responsible, since they acquiesed in the work as it progressed.

This decision is based on the theory that professional services of architects or engineers are to be protected when such services are actually used and do actually contribute to the permanent improvement of the structure in question and are not merely preliminary plans and specifications or estimates, which have not been utilized.

Thus is established the principle that supervision, plans and specificatons actually used in the work may be made the basis of a mechanic's lien.—Bulletin, Michigan Society of Architects.

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SHUTTERS

Shutters make almost every home better—but they must justify themselves by improving appearance, or excluding cold on bitter winter nights, or possibly intruders. Pleasant colors can do much to relieve monotony of walls and windowpanes. Clambering vines and color on sash and trim are very good. The next best things are shutters. They can change the home's color scheme and even alter its design. Windows poorly proportioned, too narrow, too high, seem to get new width and harmony from shutters. Full length shutters on first-floor windows opening on a terrace give first floor justifiable importance over second. Similar treatment at an entrance enhances its color, prominence, width.

An entrance door not protected by porch or vestibule can have glass shutter panels in winter substituted for plain ones in summer, thus making it serve as a storm door. It is not much more work to fit shutters with hinges so they may swing in place and be useful, than to nail them on as so much fixed ornament.

When the home is painted, it is no effort to swing the shutters and paint behind them, if they are hinged. Shutters with louvers, or horizontal slats, and panels are appropriate with almost all styles of architecture. An advantage is that air circulates when they are closed to exclude the sun. Batten shutters are best confined to picturesque homes, not formal ones. Green is the most popular color. But a little old Colonial home the writer has in mind, has powder-blue shutters—and most pleasing.

Another old Colonial has yellow shutters to enliven its oyster-white plaster walls. Pennsylvania Colonials show white shutters against walls of tawny stone or red brick.

Black shutters sometimes look exceedingly well. If green, never take the emerald shade because it relates to nothing in nature and

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gives jitters to all who pass. Bottle green, of old colonial antecedents, is deep in hue, like foliage in the shade, and very substantial. Lighter shades should harmonize with nature—match it to a leaf of any deciduous tree when held toward the sun.—Digest from Better Homes and Gardens.

BILLS PASSED

California Senate Bill 287, authorizing the setting up of codes in a limited number of service trades, was passed by the last Legislature and awaits action by the governor.

Senate Bill 329 which places the trucking industry under regulation by the State Railroad Commission was signed by the governor, having passed both branches of the Legislature.

Assembly Bill 313, passed and signed by the governor, requires that any sums borrowed from the gas tax fund by the state controller shall be repaid from the general fund or be secured by interest bearing warrants issued against the general fund. This will prevent the loss of Federal aid by diversion of gas tax funds from highway purposes. Several bills permitting the use of gas tax and motor vehicle fees for illumination along the highways were passed but have not been signed by the governor.

Senate Bill 561, allocating an additional 1-4c from gasoline taxes to cities, was passed but has not been signed by the governor. While this would reduce the state's new construction expenditures by $3,000,000 a year, the money would be spent in practically the same manner in the cities under the jurisdiction of the state department of public works.

CAPITOL EXTENSIONS

For the first time since its completion in 1874, the State Capitol in Sacramento will be changed in exterior architectural design, when funds become available. The estimated cost is $950,000. The state

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W. S. Dickey Clay Mfg. Co., 116 New Montgomery Street, San Francisco; factory, Niles, Calif.; yards, 7th and Hooper Streets, San Francisco, and 105 Jackson Street, Oakland 2
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Johnson Service Company, Milwaukee, represented on the Pacific Coast by the following branch offices: 814 Rialto Bldg., San Francisco; 153 West Avenue, 34, Los Angeles; 1312 N.W. Raleigh St., Portland, and 473 Coleman Bldg., Seattle ..... *

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Boulder Canyon dolomitic hydrated lime, manufactured by United States Lime Products Corp., 85 Second Street, San Francisco; 1840 E. Twenty-fifth Street, Los Angeles .....

LINOLEUM

Sloan-Blabon linoleum, sold by California Shade Cloth Co., 210 Bayshore Boulevard, San Francisco 70

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ONYX

Joseph Musto Sons-Keenan Co., 535 No. Point Street, San Francisco 72

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W. P. Fuller & Co., 301 Mission Street, San Francisco. Branches and dealers throughout the West 8
Bass-Heuter Paint Company, San Francisco, and all principal Coast Cities 4
Frank W. Dunne Co., 41st and Linden Streets, Oakland 5
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PIPE-DUROLINE (cement lined)

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Columbia Steel Company, subsidiary of United States Steel Corporation, San Francisco, Los Angeles, Portland, Seattle, Salt Lake City .....

PIPE FITTINGS (Solder type—Streamline)

Mueller Brass Co., Norman S. Wright & Co., distributors: 41 Spear Street, San Francisco; 608 Pioneer Bldg., Seattle; 923 East Third Street, Los Angeles .....

PLASTER

"Empire" and "Reno Hardware Plaster," manufactured by Pacific Portland Cement Co., 111 Sutter Street, San Francisco; Portland, Los Angeles and San Diego ..... Third cover

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PLATE GLASS
Libbey-Owens-Ford Glass Co., Toledo, Ohio; 633 Rialto Bldg., San Francisco; 1212 Architects Bldg., Los Angeles; Mr. C. W. Holland, P. O. Box 3142, Seattle . . . . . *

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N. Clark & Sons, 112-116 Natoma Street, San Francisco; works, West Alameda *

RUSTIC FENCING
California Rustic Fence Company, 646 Call Building, San Francisco . . . . . *

SAND, ROCK AND GRAVEL
John Cassaretto, Sixth and Channel Streets, San Francisco 75

SHADE CLOTH
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SHEET METAL WORK
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STAINLESS STEEL PIPE AND TUBES
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Republic Steel Corporation, Rialto Bldg., San Francisco; Edison Bldg., Los Angeles; Smith Tower, Seattle 73

STEEL SHEETS
Columbia Steel Company, subsidiary of United States Steel Corporation, San Francisco, Los Angeles, Portland, Seattle, Salt Lake City . . . . . *

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Columbia Steel Company, subsidiary of United States Steel Corporation, San Francisco, Los Angeles, Portland, Seattle, Salt Lake City . . . . . *
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Pacific Coast Steel Corporation, Twentieth and Illinois Streets, San Francisco; Slawson Avenue, Los Angeles; American Bank Bldg., Portland; West Andover Street, Seattle 75

STORE FRONTS
Kawneer Mfg. Co., Eighth and Dwight Streets, Berkeley 70

TEMPERATURE REGULATION
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Reilly Tar & Chemical Corp., Indianapolis, Indiana; Architects' Bldg., Los Angeles; 461 Market Street, San Francisco 4
E. K. Wood Lumber Company, No. 1 Drumm Street, San Francisco; 4701 Santa Fe Ave., Los Angeles; Frederick and King Streets, Oakland 6
J. H. Baxter & Co., 333 Montgomery Street, San Francisco, and 601 W. Fifth Street, Los Angeles 71

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NOTES AND COMMENTS

[Concluded from Page 7]

sults of the Convention's action concerning State Societies, and devise the next step towards a desirable unification.

(2) Develop harmoniously with the government agencies the program outlined in the report of the Committee on Public Works.

(3) Marshal the utmost, in counsel and in active support, that the Institute can offer to the Construction League, which faces a most urgent task calling for enlightened and constructive leadership.

"Here is challenge enough to the Institute." ■ ■ ■

BONDS DEFEATED

Defeat of the proposed $13,950,000 building bond issue at the special state election in California August 13 means curtailment of the projected institutional building program and abandonment of the $3,500,000 Southern California prison, $1,000,000 addition to the Los Angeles State Building and $950,000 addition to the State Capitol. However, urgently demanded additions to the state hospital system will be completed with the funds available from the current appropriation and this work is being rushed to the contract stage.

State officials in charge of the institutional building program are preparing to stretch the $3,750,000 special appropriation voted by the last legislature to cover as many hospital additions as possible with the aid of supplemental P W A grants.

ENGINEERS TO MEET

The Structural Engineers Association of California will hold its annual convention this year in Fresno. The date has not been decided but tentatively it will be early in October. John B. Leonard is President of the Northern Section.

EXHIBIT

The manufacturers Committee of the Oakland Chamber of Commerce has announced September 23-27 inclusive as the dates for the fifth annual East Bay Manufacturers Exhibit to be held at the Hotel Oakland.

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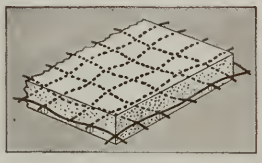
SEPTEMBER · NINETEEN THIRTY-FIVE

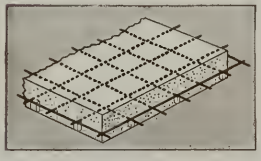
The Architect & ENGINEER

How **TAN PLASTIC** *pourability*

elped keep reinforcing mesh in place whil ouring floor of this swimming pool



This is what usually happens to reinforcing mesh when a concrete mix having a low pourability is used. Note how the reinforcing mesh has become displaced due to the necessity of forcing the concrete into position.



When TAN PLASTIC is used its high *pourability* enables the concrete to flow smoothly through, in and around the reinforcing mesh, thereby eliminating sagging and displacement.

"In pouring many floor slabs where the reinforcing is suspended a few inches from the bottom it is always a problem how to prevent sagging and displacement of reinforcement mesh while pouring and spreading the concrete.

TAN PLASTIC was used in the floor of this pool with excellent results. The mix poured through the mesh smoothly and uniformly making it easy to keep the reinforcing in place. Since construction the pool has stood alternately empty and filled for over two years with no signs of leaks or cracks."

{signed} MARK DANIELS, A.I.A.
Architect, Swimming Pool on the estate of Mr. and Mrs. E. M. Ricker, Hillsborough, California

GOLDEN GATE
TAN
PLASTIC
WATERPROOF PORTLAND CEMENT

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Notes and Comments

OUR domestic architecture is changing once more. Here in California we seem to be about through with the Spanish and Mediterranean—lovely and appropriate to our climate and background as these styles may be. Eighty-five per cent of the houses being designed today are California Colonial. How long this style is going to last remains to be seen. Some think for a considerable time. Meanwhile, like my lady's gown of last year, the houses built two or three years ago are out of date!

Recently the Northern California Chapter of Architects held an exhibition of work and the pictures were hung in the Veterans Memorial Building, San Francisco, for public inspection. Honor Awards were distributed for excellence of design and construction. Arrangements were made by this magazine to show in detail some of the better work exhibited. But with this fast changing style in residence design, to illustrate some of these houses would be like resurrecting the tandem bicycle and horse and buggy. They are out of date and consequently of little value to architects in search of new ideas. The trend is toward a restrained moderne—and California Colonial.

* * *

ARCHITECTS are moving back into office buildings. A good sign of building revival.

* * *

EVERYWHERE are signs of improved building conditions. Residence and alteration work are the two items that are contributing largely to the construction revival. When one considers that the residential field provides three-fourths of our building activity in normal times, the fact that home building is now well on its way again is a good sign that the industry is making a "come back."

Used homes are in demand; particularly those that have been remodelled, repainted and redecorated. They are bringing better prices and this fact has encouraged new home building. Sub-divisions are being sought by shrewd investors. One outstanding example of this type of improvement is the proposed development of the Odd Fellows cemetery site in the area bounded by Parker Avenue, Turk Street, Arguello Boulevard and Geary Street, San Francisco. The property comprises 7200 feet of frontage. It is planned to spend upwards of $4,000,000 developing this land and building low priced homes to be sold to the middle class of workers.

* * *

ALONG with the revival of residence construction, comes unmistakable signs of improved real estate conditions. Inquiries for desirable property are on the increase and there is less bartering for bargains than at any time since the beginning of the depression. Property is passing to stronger hands. Increasing employment yields more for rents and landlords.

The question is heard many times: "Is real estate a good investment?" In answer to this query Prof. W. H. Ten Haken, in the *St. Louis Realtor*, says:

"How does real estate measure up to the three main qualifications of good investment? These embrace security of principal, fair rate of return, marketability. Surely the land, when bought at low prices, is secure enough. So are improvements, such as buildings and their equipment, when held in proper use. Land cannot be destroyed. Over a long period, its price tendency has always been upward. Buildings are the main factor in adequate return. They call for intelligent maintenance. Land and buildings obtained at low or reasonable prices, bring returns equal to, if not greater than, any other forms of investment affording similar security. Rate of return fluctuates with security of principal. Investors are satisfied with a low rate where their principal is highly protected. They expect larger returns where they risk more on safety of principal. These two factors show real estate now in a very strong position. Marketability temporarily is unfavorable. It is always much less in velocity than that of stocks, bonds and commodities. But this carries its advantages for long-time investment. It gives the buyer a low price. It may be held through a period of several lives and sold finally at great profit. As Theodore Roosevelt once said, real estate is the basis of wealth, the surest, safest way to independence in a growing, prosperous community."

* * *

ON the subject of realty we quote a paragraph from *Real Estate and Building Management Digest* for August:

"After wiping out $500,000,000 a year of mortgage debt through foreclosure or composition with creditors in New York's metropolitan district, realty is doing better. The liquidation covered five years. The staggering losses were a penalty for over-extension at a boom peak. Naturally, the eliminated owners do not feel so well. Immense realty inflation, both in financing and new building, necessitated equally great liquidation when the jam began. This has progressed far enough to form a recovery backlog. Added strength comes from heavy concentration of properties under stronger financial ownership; a deluge of investment money at very low interest rates; elimination of irresponsible and predatory promoters; probable limit of tax imposition; increase of building management efficiency and its advance to a scientific basis; low market prices; great improvements in equipment and operation, appliances and materials; extensive modernization propaganda; Federal aid and steadily increasing confidence in reality as a basic investment."

* * *

IN the East furniture manufacturers are promoting the idea that homes should be sold completely furnished. A little of this is being done on the Coast disguised as "the model home".

* * *

WE have just learned that Thomas B. Hunter of Hunter & Hudson, consulting engineers, San Francisco, designed the beautiful Cabrillo Bridge in Balboa Park, San Diego, which Homer M. Hadley described so picturesquely in THE ARCHITECT AND ENGINEER for August. Prior to publication an effort was made to ascertain the name of the designer but without success. We are indeed pleased to give Mr. Hunter the credit he deserves for authorship of this splendid structure.

* * *

THE State of California is now operating a series of automatic radio stream gage transmitters in connection with flood control and watermaster service activities of the Division of Water Resources.

The use of these radio stream gage indicators serves the public interests in California in a very vital respect. During major flood conditions advance information on the rapid fluctuations of streams on which they are installed make them of paramount importance in the saving of life and property. In the watermaster activities the saving of water and crops and the protection of individual water rights is of major importance. It is believed that no higher character of use of radio on land can be made than to protect the citizens of the State from potential flood hazards and to assure an equitable distribution of water.

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TEMPLE OF LATTER DAY SAINTS, NEAR HONOLULU, T. H.
POPE AND BURTON, ARCHITECTS

The loveliness of this architectural gem is enhanced by a series of pools leading to the entrance through formal gardens.

The Architect & ENGINEER

September, 1935

Churches

by Robert H. Willson

Ecclesiastical Architecture in the Hawaiian Islands is Distinctly American and Outstanding in Interest and Charm

WHEN the Tower of Babel failed through a confusion of tongues, had the people set to work upon a group of temples at its base, they might have achieved something as unique and varied as the church architecture of Hawaii. But the result could not have been as imposing and beautiful. Hawaii has taken advantage of the progress in all the arts through the succeeding ages.

CENTRAL UNION CHURCH, HONOLULU, T. H.
Ralph Adams Cram, Architect

Here the severely classic but modernly-accepted Aztec design shelters a sanctuary of the Mormons. The upward-tilted pagoda roofs of a Chinese shrine to Buddha rest lightly upon the walls of a Church of Christ. The "Westminster Abbey" of Hawaii rises in austere dignity from a commanding position in the civic center of Honolulu. An uncompromising New England spire seems to rebuke the wavering coconut palms and points the index finger of an evangel to the zenith of tropical blue.

Yet the ecclesias-

tical architecture of Hawaii is American and the churches are branches of denominations represented in other parts of the United States. It is, unquestionably, because the East and West do meet here that the islands have attained a place in architectural interest.

Modern Hawaii has been built within a century. Two foreigners erected a two-story brick house as a palace for King Kamehameha and completed it at the beginning of the Nineteenth century. Real progress, however, began with the arrival of the New England missionaries in 1820.

MORMON TEMPLE (Latter Day Saints) NEAR HONOLULU, T. H.
Pope and Burton, Architects

There is no Hawaii architecture unless it be that of the grass-thatched native house. The primitive temples of the Polynesians were walled terraces. Within the walls were smaller covered structures containing the idols and paraphernalia of the priests, but they did not differ greatly from the dwellings except that some of them were of wood.

A prompt response in religious fervor of the natives inspired an ambition for church-building that has continued to the present day.

The most notable church building in Hawaii is the temple of the Latter Day Saints, or Mormons. Like the original temple in Salt Lake City, it is not a place of public worship and the interior is known

only to those who are in high standing in the faith. No descriptions are published.

The exterior, on the other hand, is featured as one of the tourist attractions and there are thousands of visitors annually to the grounds. The temple is at Laie, 35 miles from Honolulu, the center of a large estate owned by the church. About it is a sugar plantation on which converts and members of the church are employed chiefly.

Travelers who have seen the world frequently compare the gardens to the environment of the Taj Mahal. A succession of pools at varying levels lend themselves to the impressive vista of the approach. The landscaping is formal and in keeping with the design of the building. The most interesting detail of the building is the frieze of heroic dimension around the top, portraying events in the lives of the prophets. The sculpture was done at the building site.

MISSION MEMORIAL HALL, HONOLULU, T. H.
Harry L. Kerr, Architect

The edifice was dedicated by President Heber J. Grant, of Salt Lake City, in 1919. The composition is of volcanic rock and cement and the cost was $250,000.

The Chinese Church of Christ on South King Street, en route from the business center of Honolulu to the famous Waikiki Beach, is unquestionably one of the most unusual churches in the world. Its massive

KAWAIAHAO CHURCH, HONOLULU, T. H.

The only ecclesiastical edifice in the United States in which kings have worshipped.

FIRST CHINESE CHURCH OF CHRIST, HONOLULU, T. H.
Hart Wood, Architect

walls of stone might naturally terminate in a Gothic or Tudor roof, but here the Chinese Americans, though converted to the Christian faith, wanted to pay the respect of ancestry to the traditional temples of their native land. The straight line and the angle are Occidental. The Oriental eye is attuned to the circle and its segments. The Chinese Church of Christ is one of the newest church buildings in the islands.

Kawaiahao Church lays claim to a distinction that is other than architectural. It is the only church in the United States in which kings have regularly worshiped and in whose churchyard is the tomb of one—King Lunalilo, a former ruler who died in

1874. Its association with the history of the islands has given it the dignity of "Westminster Abbey of Hawaii." Here Kaahumanu, benevolent queen, was converted to Christianity. A bronze tablet perpetuates her memory.

The building is interesting architecturally because it was developed through a sort of "natural growth" process. The present structure is the fifth, the original church having been a very simple building erected under the direction of the Rev. Hiram Bingham, pioneer missionary. To the natives of the islands the promise of a great stone building had all the impressiveness of cathedral plans. King Kamehameha started the building fund with a subscription of $3,000. The men in the church divided themselves into five groups and each group worked one day a week. Blocks were cut from a coral reef at a distance from the building site and the tons of material were transported, literally, on the backs of the congregation.

The building is 144 feet long and 78 feet wide. The roof is of hand-hewn timber, of the durable wood from the mountains of Oahu. There is a seating room for 1700, a capacity that appeared magnificent in the early days of Honolulu.

The Central Union Church is a landmark, telling the story of early and lasting American influence in these Pacific tropics almost as eloquently as the Stars and Stripes floating from the various flag-staffs. Its substantial spire, surmounting a large tower-clock, leads the stranger to look for elm-lined avenues below and perhaps even the village smithy. It is a bit of New England in striking contrast to an exotic environment.

Mission Memorial Hall, a notable bit of color in King Street, is American Colonial in effect. Built of brick, with a portico of Ionian voluted pillars and trimmings of white stone, it represents various religious communities. In the concert and lecture hall the program is so liberal as to include the Samoan pageant dancing.

The Roman Catholic Church, the Episcopal Church, the Christian Science Church and nearly all of the Protestant denominations are well represented throughout the islands. Architectural ideas from all parts of the world have been brought together, sometimes in purity and at other times in modifications or composites to meet special requirements. Honolulu, city of 142,000 in population, as the capital of the Territory and a center for the religious organizations of all the islands, has become conspicuously a "city of churches."

The landscape, in a tropical country which lends itself to the perpetual garden, is today one of the important features in all architectural planning. But in Hawaii the local supply of building materials has also had an important influence in determining types of architecture. Volcanic and coral rock are readily obtained. The favorite timber of the islands is that of the koa tree, often referred to as "Hawaiian mahogany" because of a superficial resemblance. The wood is red and has a beautiful grain that is susceptible of a high polish. It is extensively used in the interior finish of public buildings. "Common lumber" is supplied from the forests of the mainland.

Architects now studying the future building program in the Hawaiian Islands give emphasis to several new influences. Extensive improvements at Schofield Barracks, the largest Army post in the United States, and at Pearl Harbor, the Navy base, mean a growing importance of the military. The coming of the trans-Pacific air mail and passenger service, now a matter at most of a few months, establishes a new cosmopolitanism. The trend in design is expected to express increasing sympathy with tropical and marine environment.

Hotels

by John Willy

● *Fifty Years Sees Remarkable Changes and Improvements in Hostelry Design and Equipment*

CONTRAST hotels of 1886 with the hotels of today. It seems like the rubbing of Aladdin's lamp, so great is the change. From the crude, yet, in the main, comfortable, accommodations of the old-time houses, the hotel of today gives services at the touch of a button that would have been marvelous fifty years ago. The telephone, the teletype, the pneumatic tube, steam heat, electric light, electric heat, electric power, air-conditioning, temperature control, vacuum cleaning, bath rooms, elevator, radio—they have all come into general use.

Up to 1886, the hotels and inns carried the ear-mark of the old-time inn built around a courtyard. There were still many houses that found it necessary to have a livery—horses and vehicles for hire. But this soon faded from the picture. As I recall, most of the leading hotels were built four-square with a central court. Then architects began specializing in hotels. Their creations were, next to court houses and churches, the outstanding buildings of the cities and towns. In the main, they built substantially of brick or stone, very thick walls and mostly rooms of generous size with high ceilings. They had just started to build fireproof, to give promise of safety for sleepers.

Much attention was given to the exterior trim and the interior finish. Roofs were mainly of slate, tile, gravel and tar, or shingle. Ceilings were of metal, or beamed, or plaster, or coffered. Floors were of wood, tile, or composition. An imitation of marble called "Scagliola" was used extensively for the facing of pillars in the public rooms; and a material called "Lincrusta Walton" with pattern in relief, faced the walls of many public rooms. Bed room walls were plastered, painted, or papered, as now.

Hotels were built mostly on Colonial or Georgian lines, and a sprinkling of French with the mansard roof. Since then there has been great versatility in design. The architects seem to have taken Roman Gothic capital letters as basic for their layout scheme, to give light and air to the rooms. The four-square is varied with the I, L, T, V, Y, H, E, X, C and O, double E (EE) and double H (HH). The first of the double EE houses with their open courts made their appearance about 1890. The latest in architectural design, the towering structures with set-backs, seem to have taken their cue from the oldest sky-scraper designs—the hanging gardens of Babylon. Among the hotel structures of today are some magnificent creations with sky-scraping towers and housing about every convenience for creature comfort and recreation which it seems possible to devise.

1884 "CONVENIENCES"

Describing a pretentious resort hotel in Ashland, Wisconsin (1884): "Nearly every room in the house is fixed for stoves. The crockery throughout all rooms is of ornamental ware. Bowls and pitchers are used to avoid the danger of sewer gas in running water pipes. Gas is burned all over the house and the hotel is fitted throughout with electric bells. Great precautions are taken against fire, there being standpipes on every floor with hose attached and al-

ways ready; hand grenades, Babcock's extinguishers, filled buckets and other paraphernalia."

In a tour of the South, in which many cities and resorts were visited, I find in the scrap books these sentences expressive of hotel accommodations of 1885: "All bedrooms have fireplaces and running water . . . Bedroom ware of Trenton manufacture . . . Sample rooms equipped with folding beds . . . Public bath rooms and water closets on every floor . . . Fire escapes . . . Chemical fire extinguisher . . . Whittier Machine Company's steam and hydraulic elevators . . . Plunger elevators . . . Stairways in solid brick walls . . . Fire walls . . . Fire doors . . . Fire-brick chimneys conduct ventilating pipes to the top of the house . . . Electric bells . . . Hess patent fire and call alarm . . . Siemen's burner lights in dining room and public rooms . . . Arc and incandescent lights . . . Private sewer which runs direct to the river and thus insures perfect drainage."

The amusements were mainly billiards and bowling. The hotel bus met the trains. Taxicabs were unknown. A stationer in Philadelphia advertised: "Carpenter's combination hotel and boarding house books." A guest's extra charges were frequently entered over his signature in the register book. The cash register was unknown. The fight against vermin was fierce and the smell of disinfectants bothered a lot of people with sensitive noses.

Plumbing was in its infancy fifty years ago. The bowl and pitcher and slop jar was in evidence in the bedrooms of nine out of ten hotels. Water pipes and sewer pipes banished these. But it took several years to bring about the condition of every room with lavatory (hot, cold and ice cold running water), tub and shower bath and toilet.

The passenger elevator came into general use just prior to 1885. Some elevators had a supporting rod of steel that went down into the ground as far as the car rose above ground. Some had an air cushion at foot of shaft for protection in case of a fall. The modern electric elevator with automatic safeguards, and traveling 600 feet a minute, is in strong contrast with the earlier machines.

There has been a great change in the kitchen equipment—a greater change than in methods of food preparation. Hand work and drudgery is practically abolished, and nearly all of the former burdensome work is now done by machines. The first dishwashing machine I have record of was put on the market in 1884. The clock-timed egg-boiler was invented about that time. The first mechanical refrigerator plant came into use in the early nineties and pioneered an invaluable service in the preservation and convenient handling of perishable foods. The fuels—wood and coal—so general fifty years ago in kitchens, have given place largely to gas, oil and electric heat. The first steam power laundry was installed in hotels about fifty years ago.

Fifty years ago, the toilet was "down the hall"; the bath tub was a public one (usually one on each floor), raised on four legs and encased in wood paneling. Today, the guest room without private toilet is a rarity, and the "room with bath" is an accepted luxury. Through the years there have been numberless changes in the refinements of the fixtures and their method of operation. The valves, drains, have been perfected to give almost foolproof service, to fill tubs quickly, drain quickly, and flush toilets noiselessly. The shower bath has forced its way into the hotel, and from the first crude device has been refined with mixing valves, indicators, and leak-proof cabinets.

"Don't Blow Out the Gas"

Fifty years ago, the guest who wanted to communicate with the hotel staff, pushed

a button in his room. One ring for bellboy, two rings for ice water, three for maid service (or whatever the instructions read). Today, the telephone gives instant communication with any department, the connections made by young women selected for their special courtesy, voice control, and adaptability to their jobs. The stages of improvement in communication have been progressive too, and another milestone was created by the first hotel to provide every room with telephone. The switchboards have advanced in design and perfection to such an extent that the first ones installed in hotels would make interesting exhibits in museums today. Not only has the telephone promoted ease of communication in hotels, but the radio has brought to individual hotel guest rooms communications from the four corners of the earth. Concerning radio and its rapid development, the late W. C. Muschenheim of the Astor Hotel in New York, who pioneered in many new things, when interviewed about radio for hotels, was hesitant about wiring his hotel for this service because he thought in a few years it might come to every room without going to the expense of wiring!

A sign in many hotel bedrooms read: "Don't blow out the gas." Electric fans were unknown in hotel bedroom equipment. Many a hotel charged for fires and baths. Hot water for shaving and ice water for drinking were at push button bell call. It was not uncommon in winter time to have to break the ice in the pitcher before pouring water in the wash basin. The Servidor was unknown; window screens were a rarity, so were rooms with twin beds. A few hotels were so up-to-date as to have a telephone booth on each floor.

Noise has always been a disturbing element in hotel operation. It continues to be, in most hotels not built sound-proof.

THE HOTEL OF TODAY

Fifty Years Ago Hotel Patrons Enjoyed no such conveniences as—

Private baths in rooms; tub and shower; Toilets—Circulating ice water—Steam or hot water heat; electric heat—Room telephone service—radio—Elevators—Electric lights—One-day laundry service.

Music during the meal hour—Dance music—Cocktail lounges—Twenty-four hour room service—Bus lines going in all directions at all hours of day or night—Telegraph offices—Brokers—Beauty parlors—Information desks, distributing maps and guides to assist travelers—Theater ticket offices—Air service—Kitchenettes—electric refrigeration—fixtures for cooking by gas—Electric fans—Bed-head lamp—Running hot and cold water—Window screens—Ceiling fans—Snap locks on room doors—Porter's desk for purchasing railroad tickets, etc.—Valet service; suits pressed in thirty minutes—Hotel stores—Uniformed bell boys—Amplifier system for banquet speeches, etc.

Noise is lessened by sound absorbing material facing walls and ceilings; also by improved construction methods; also by rubber put to many uses for this purpose.

Heating systems have been developed to the extent of abolishing radiators, the heat radiated from wall panels.

The occupancy indicator on door locks is a godsend to people who do not want their rest disturbed.

The hotel of today is broadening from the "transient" only to the combined "transient and residential" house, this effected by the installation of kitchenettes equipped with heat and cold on tap for light housekeeping.

I would say that the outstanding features are the introduction of plumbing and heating.

Fifty years ago most hotels had fireplaces or stoves; extra charge for fires. Then came the radiators and they usually made the hallways a boiler shop for the noise. Now, central heating systems are in all hotels and heating can be regulated at will.

POTTED PLANTS AND SHRUBBERY GIVE THIS PICTURE JUST THE DESIRED FEELING TO EMPHASIZE THE STYLE OF ARCHITECTURE

Maya Design

by Prof. Gerhardt T. Kramer

● *Archaeological Facts Show Marked Difference Between Pure Maya of the Southern Cities and Mexican Examples*

DURING the past generation there has been an earnest effort on the part of our architects to introduce into this country a national type of architecture. This interest is encouraged not by a dissatisfaction of the prevailing types, but because we can no longer feel that our present foreign importations express the character and personality of our great nation.

Any new adaptation, however, has met with only mild success. We have changed from one type to another without perpetuating any merely because we have failed to find any of the types suitable to the conditions presented in this country.

Recent excavations in Mexico and Central America have revealed the fact that already there exists on this continent a distinctive and truly American style of architecture. Long before the discovery of America by Columbus there flourished in this section a cultured people who built beautiful and dignified buildings which they ornamented with restrained and highly conventionalized carvings. Here is a style that we cannot, perhaps, call "typically American," but at least we can call it "truly American."

Certain circles of American architects have not been slow in realizing the possibilities offered by the adaptation of the design and ornamentation from the buildings of the Middle American civilization, known as the Maya. Particularly in the West—hotels, country clubs and yacht-club buildings, as well as theatres and even homes have been built in this style, or rather claim to be representative of this style because of the wierdness of their design. In the majority of cases, however, the adaptation has been very unsuccessful and in many cases should not and justly cannot be called Maya. Nevertheless, the participators in this move are to be commended on their efforts while attempting to take advantage of the opportunity at their disposal. It is a step in the right direction.

The ruins of the civic centers of this old civilization lie scattered throughout the Central American countries of Guatemala, British Honduras, and parts of Spanish Honduras and El Salvador as well as the Mexican states of Yucatan, Campeche, Tabasco and Chiapas. This area has been divided by nature into two sections, which, strange to say, correspond to the two major divisions of Maya history—the upland and the lowland. The area in which this great culture probably developed is for the greater part mountainous. Limestone, on the

Editor's Note—The author is Associate in Architecture, Department of Middle American Research, Tulane University of Louisiana, New Orleans. Photographs courtesy of the University.

TEMPLE OF CHICHEN VIEJO

The smaller buildings at Chichen Itza show how really simple the Maya buildings of Yucatan can be and hence how easily adaptable to the temperament prevailing at the present, which is towards simplicity.

PALACE AT SAYIL

The type of column can be modified in proportions and used effectively in our own modern colonnades.

other hand, forms the foundation of almost the entire peninsula of Yucatan, the region where Maya culture still florished at the time of the Conquest.

Purest Maya Art

We use the buildings of Northern Yucatan as our source of information more than those of any other region of the Maya area. The architecture of this region theoretically is not pure Maya. The purest Maya art is found in the great cities to the south of Yucatan, which includes Palenque, Yaxchilan, Quirigua, Naranjo, Tikal and Copan. The ornamentation in these cities was strictly symbolic and was mostly done in stucco. Very little of this remains today, due to the destructive powers of the tropical vegetation. During the sixth and seventh centuries of our Christian era these cities were abandoned and new cities founded and colonized in Yucatan.

Some time later Mexicans entered Yucatan. Through certain historical events these immigrants were allowed to secure a foothold in some of the leading cities. Today one can readily see in the important ruins of these cities how the presence of these foreigners influenced the architecture of the Maya. The facades of the Yucatan buildings display a collaboration of symbolic and geometric design.

In using decoration from these buildings we must first of all recognize these differences. Might it not be safer in the future to refer to this type as Yucatecan Maya? This will definitely identify it from the pure Maya of the southern cities and from the original Mexican.

A short time ago an article, "Reviving the Wonders of the Maya Kings," appeared, explaining how the architect had incorporated the Halls of Moctezuma in his design. A bit confusing, yes, but the illustrations were even more confusing. In the modern adaptations represented in them it was impossible to tell whether they had been taken from the Maya or the Aztec.

Now that we have properly acquainted ourselves with things Maya we may concentrate on its possible modification. Yucatecan Maya buildings, all elevated impressively on series of terraces and plazas, are of two kinds, the temple and the palace. The temples, rectangular in shape, are the crowning features of the majestic hand-built pyramids. These were the centers of their religious worship. Within the innermost chamber burned the perpetual fire and here was located the altar upon which their bloody sacrifices were offered. The palaces on the other hand were inclined to be long and narrow and served as the government buildings and meeting-houses, as well as the houses of the priest and the nobility.

Two Types of Buildings

These two types of buildings may be better characterized by their vertical and their horizontal architecture. The pyramids with set-backs similar to those which have been adopted about unanimously by our architects in skyscraper construction represent the vertical type. Comparatively narrow stairways rose at steep angles up the front or four sides of the pyramid, giving the structure in elevation a pronounced vertical effect, relieved somewhat by the series of horizontal set-backs.

The palaces, which were extensive in length and low in height, rested serenely on the low expanded terraces. Their facades were divided at about the middle by a moulding which extended around the entire building. This moulding interpreted the beginning of the corbelled arch on the exterior. Because their buildings were forced to this additional height due to the almost vertical construction of their arch, the Maya employed this space on the ex-

MAYA BUILDINGS OF UXMAL, YUCATAN

The buildings are elevated impressively on a series of terraces and plazas and are of two kinds —the temple and the palace. The temples were the crowning features of the pyramid while the palaces, which were excessive in length and low in height, rested serenely on the low expanded terraces.

THE "CASTILLO" OR GREAT PYRAMID AT CHICHEN ITZA

This structure now being reconstructed by the Mexican Government is representative of the vertical type of architecture. The stairs that rise up the four sides give a pronounced vertical effect which is relieved somewhat by the series of horizontal set-backs.

terior by filling the entire area above the medial moulding with ornament. A little space, however, was allotted to a crowning cornice which was generally similar in design to the medial moulding. In only a few cases was the lower region also ornamented. Usually it remained plain except for color. These divisions on the exterior of the building not only gave to it a horizontal feeling but also interpreted its plan and section faithfully.

With the types of buildings varying so in the original, we are actually without limit in the type of modern buildings to which this style may be applied successfully. The long, low building should lend itself readily, and some existing skyscrapers prove that it is adaptable to the vertical structure. Considering that a goodly part of the originals were government buildings and meeting-houses, we can unquestionably state that our public buildings and monumental structures should result in pleasing Maya designs without any difficulty.

To the modern observer the exterior of the Yucatecan buildings display an overabundance of fantastic and spectacular ornamentation interwoven on a field of purely geometric design and we are inclined to feel that our design must be just as strange in order to be a proper adaptation. To the Maya architect, however, every bit of this carving had its definite meaning and its definite position on the building. It was symbolic of the religion of their civilization, with Kulkulcan, the Feathered Serpent God and the Long-Nosed God mask-panel dividing honors for the leading position. For us to apply this ornament promiscuously to our design without any regard whatsoever to its tradition would in itself be sufficient to discredit our building as a proper interpretation.

This condition seems to have been entirely neglected in the majority of our existing examples. Ornament, neither Maya nor Mexican in either feeling or character, has been unscrupulously strewn over the wall surfaces of the buildings. On the exterior of the Aztec Hotel in Monrovia, California, an assortment of scrolls have been tossed together and placed on bare wall surfaces where decoration was thought necessary. The designer has failed utterly in interpreting the symbolism or the craftsmanship of the originals.

The vertical shafted serpent-columns which we reproduce so diligently were used as the supporting columns to the main entrances of the various structures at Chichen Itza. Here they functioned as an essential part of the construction; they supported the lintels that carried the tremendous weight of the concrete roof. What right have we to use this motif as an isolated feature in the interior of a building? Surely we would not consider using a Greek or Roman column in this manner, unless it were an original placed there on exhibition.

Architects Get First Hand Data

We are still pioneers in this field, but already we have a good beginning. The necessary interest is there. Every expedition returns from the field with reports of new finds—buildings as yet unreported. Each of these adds a bit more to our storehouse of information. Many architects are traveling to Yucatan and getting the data on location. And this is perhaps as it should be for proper execution. The Maya buildings are so unique, so unlike any other type of original architecture that it is impossible to acquire a sufficient knowledge of them from written material.

Our immediate predecessors in architecture had the same difficulty adapting the Classic to their designs. It was only after they had stripped the ancient buildings to their meagre skeletons and learned the principles of the construction and the rela-

tionship of the sculpture to the construction that they were able to make logical modifications. Every building built along Classic lines today has the appearance of some building done by the Greek or Romans themselves. It may have been merely shorn of its sculpture, or perhaps only a row of columns was used. Still, they were buildings. Where were their columns used? What did their columns support? When did they use ornament? All these phases will have to be met face-to-face and dealt with accordingly, if we expect to obtain proper results.

A certain architect in designing a New York skyscrapeer in Maya character ap-

DETAIL, WEST WING OF THE NUNNERY QUADRANGLE AT UXMAL, YUCATAN

To the modern observer the exterior of the Yucatan buildings display an overabundance of fantastic and spectacular ornamentation interwoven on a field of purely geometric design. Every bit of this carving, however, had its definite meaning and its definite position on the building.

used as in the original. We would never set a column on its cap, and use its base as a cap. Yet, if we did, the separate parts would still be Classic. In this same way may our adaptations be true Maya and yet used improperly.

As our predecessors began from the core of the Classic, we must begin from the core of the Maya. We must first learn the essential units of the facade of their

proached his subject from this angle. He began by restoring the Great Pyramid at Tikal, which is now in an advanced state of ruin, and then made his studies to conform. The design of the resulting edifice is indeed creditable.

For Greater Simplicity

Disrobed of their ornament, Yucatecan Maya buildings are quite simple and hence

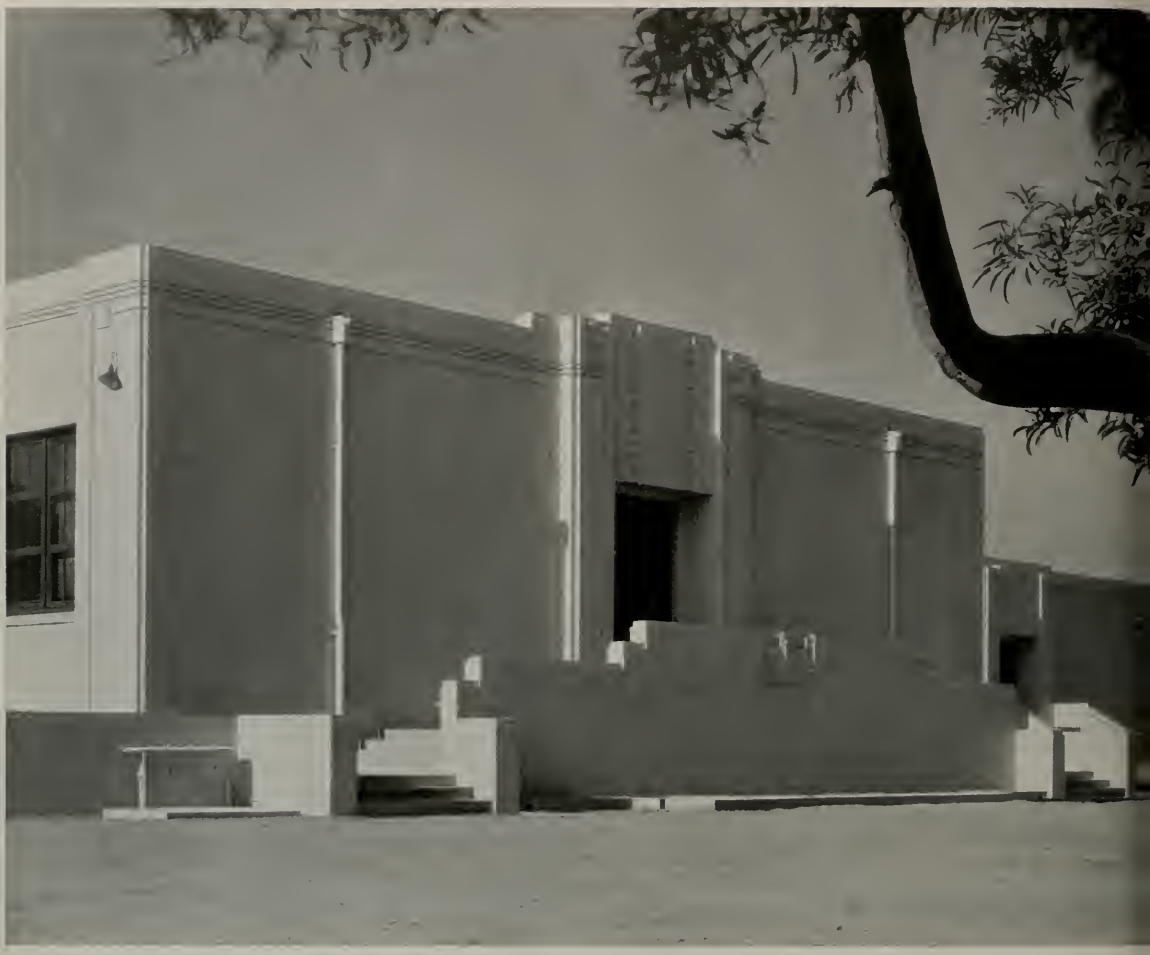
easily should be adaptable to the temperament prevailing at the present, which is towards simplicity. In the accompanying illustrations an attempt has been made to show the possibilities of accepting Yucatecan Maya in its simplest form and using it distinctively in a modern building while still retaining the modernism in the massing and proportions of the building. Let us look at a purely hypothetical problem, a study for a "Pan-American Peace Palace" to be built on the outskirts of Guatemala City, which is practically in the heart of the area of the southern Maya cities.

The plan is placed on the uppermost of a series of terraces and is approached by wide stairways. Entrance to the court is gained by a wide interval in the front building in which is placed two large stelae. About the court on three sides extends a wide vestibule which is both in keeping with Maya planning and fulfills the requirements of present-day tropical planning. This arcade is spanned by the typical corbelled arch. Framing this arcade are the separate office suites for the foreign representatives. At the far end of the court, opposite the entrance, is the great Council Chamber which is carried out in the pyramid type, except that the Chamber is located in the core of the pyramid itself. To the rear of this chamber is the great Reception Hall with its colonnade facing the open lake. On either side of the court are placed the Library Section and the Commercial Section.

One-eighth scale plaster model by Herndon Fair and Gerhardt Kramer

RECONSTRUCTION OF NUNNERY AT UXMAL, YUCATAN, BY TULANE UNIVERSITY FOR CHICAGO WORLD'S FAIR

The facades of the horizontal buildings were divided in two by a medial moulding. The entire area above this moulding was filled with ornaments, both symbolic and geometric. The lower region remains plain except for color.



GROVER CLEVELAND ELEMENTARY SCHOOL, PASADENA, CALIFORNIA
ROBERT H. AINSWORTH, ARCHITECT

SAN FRANCISCO
PUBLIC LIBRARY

oiled plywood, keeping the form joints generally inconspicuous except in special instances where they are accentuated for purposes of design by inserting wood strips in the forms. This use of selected horizontal and vertical joints, combined with a very restricted use of waste mold ornament, constitutes the only expenditures made for pure design and decorative purposes.

The building is designed for a seismic factor of 10 per cent and has a concrete slab in the corridor at the floor and roof level. This slab acts as a distributing diaphragm to the concrete cross-walls which transmit the horizontal forces to the foundations. Classroom floor and roof joists are of wood.

Special and constant attention was given to the concrete mix during all placing operations, not only to insure high structural strength but to avoid unsightly and expensive patching of exposed surfaces. The comparatively thin hollow wall sections, combined with inserts in the forms and incised ornament did not simplify this problem. Difficulties were avoided, however, by adding a definite percentage of extra fine sand to the mix; preliminary studies of various mixes having proved that this addition of fines not only definitely improved the handling qualities of the concrete in constricted spaces, but increased the compressive strength to a marked degree without change in the water-cement ratio. The final mix closely approximated a 1-2½-3¼ mix with 6¼ gallons of water to one sack of cement. Internal vibrators were used throughout in placing the concrete to insure complete compaction and a good appearance.

Where vibrators are used it has been our experience that extra bracing is necessary to prevent the form being racked out of alignment. This added bracing was provided on this project.

The results of careful attention to construction procedure proved highly satisfactory. Not only was patching almost entirely eliminated, but the concrete was held uniformly well above strength requirements.

Waste molds being most adaptable to the ornamentation of monolithic concrete work, they were given thorough consideration in the design and construction. There are few types of ornamentation which give the architect such a feeling of utter freedom when he knows a reasonable amount of care will be given to the placing of concrete. As a precautionary measure, the inner surfaces of the waste molds were lined at least ¼ inch thick with a slightly different colored material than the rough backing. This warned the workmen stripping the mold that they were arriving at the surface of the concrete, thereby eliminating any excuse for marring the finished surface. Repeated use of the same design always materially reduces the cost of waste molds, particularly if the modeling cost is an appreciable item. For this reason some duplication is evident on the Grover Cleveland School.

Exterior finish of the building was a coating of cream colored cement paint.

Although the exposed concrete was painted to conform to the prevailing color of some of the more recently erected schools of this district, there are apparently few limitations to the finish that may be used on work of this nature. Here, again, the architect has a wide choice that is typical of this plastic, varied and ever interesting form of construction.

North Sacramento School

Grant Union High School at North Sacramento, completed this year, segregates the school functions entirely. The building is basically three separate units, connected by wide halls and arcades. The auditorium, seating 1000, is located at one

GROVER CLEVELAND ELEMENTARY SCHOOL, PASADENA, CALIFORNIA
Robert H. Ainsworth, Architect

ARCADE AND AUDITORIUM, GRANT UNION HIGH SCHOOL
NORTH SACRAMENTO
Harry J. Devine, Architect

CLASS ROOM UNIT, GRANT UNION HIGH SCHOOL, NORTH SACRAMENTO
Harry J. Devine, Architect

extreme and the gymnasium is at the other. Between them, easily accessible to each, is the administration and academic unit, containing 20 well-lighted classrooms and offices.

The architectural style is early-Italian. expressed in exposed reinforced concrete. The exterior walls reveal the marks of the form boards through a white stucco dash coat. In most cases, interior walls are treated with a dash coat of acoustical plaster. Certain areas, however, have been

GRANT UNION HIGH SCHOOL, NORTH SACRAMENTO, CALIFORN
Harry J. Devine, Architect

decorated with colored stains and stencil work applied directly on the exposed concrete.

Shiplap forms were used throughout the building without any attempt to conceal jointlines. The concrete used in the construction was a sound, dense mixture in which the water-cement ratio was carefully controlled at all times. The uniformity of the exposed surfaces, the result of skilled craftsmanship and rigid inspection, may be seen in the photographs taken soon after completion of the job.

Grant Union High is the first major school in northern California to be designed and built to conform to the Field Act, which provides that all school buildings be designed to withstand earthquake stresses. These requirements were met easily since the reinforced concrete walls and floors produce an integral, rigid structure.

The original plans for this school were for masonry construction, but were afterward changed to monolithic concrete as being much more economical. An additional reason for this change was that concrete, used architecturally, could produce the desired texture and color.

Planning

by John Nolen, F.A.S.L.A.

● *Landscape Architects are Taking the Lead in Regional and State Betterments*

IT IS not easy to define State Planning in any definite way. Before the depression, very little of it was done, the most notable instances, perhaps, being the work in New York State and in Iowa. Under the stimulus and assistance of the National Planning Board, and later of the National Resources Board, some 42 states have undertaken state planning programs during the past year with the co-operation of the Federal agencies, including the services of one or more planning consultants. The original program placed emphasis upon land use, transportation, and public works.

The State Plan is, of course, not merely a physical plan. If it is to be successful, it must be prepared from sociological, economic, and administrative viewpoints. Among its objectives there would naturally be improved standards of living, a better economic use of land, increased convenience in transportation, wiser distribution of population, and conservation.

State have functions, and plans should be made so that they may perform these functions worthily and economically. In all state planning there is need to base proposals upon a comprehensive survey and a discovery of trends. Research is essential and in some respects calls for a different technique from planning.

State planning is unlike city planning. The subjects are different. In state planning the land looms in importance. Rural life problems demand attention. But the difference is not only in the topics. A city is a corporation with important but, after all, limited functions. *States are sovereign.* In many ways they act as nations, and some of our states are as large as nations. "Commonwealths" is a suggestive word. There is a call for statesmanship in state planning, for vision. Policies must be outlined. Great social purposes must be consciously served through well-conceived and well-planned physical developments, employing all the economic means that can be made available through a mastery of financial resources, and a wise use of improved administrative methods. In state planning the larger purposes of democratic government must be stimulated and fulfilled by co-ordinated effort.

The professions concerned in state planning may be divided into two groups. On the one hand are the plan-making professions, — architecture, landscape architecture, and engineering; and on the other, the professions concerned primarily with economics and sociology, with methods of administration, and with legal procedure.

From a paper entitled "Does the Landscape Architect Think Regionally?" Presented at the Thirty-sixth Annual Meeting of the American Society of Landscape Architects, and printed in *Landscape Architecture*.

Each of these professions has its aptitudes for state planning, and each makes its contribution. For example, state planning draws upon:

(a) The engineer, for much specialized scientific knowledge and data.

(b) The landscape architect, and to a lesser extent the architect, for special knowledge of their subjects, and training and experience in design that combines fitness, economy, and an appropriate beauty.

(c) The economist, for a scientific sense of values and money, with budgeting, long-range planning, etc.

(d) The sociologist, for understanding of and sympathy with civic, social and individual betterment and improved living conditions.

(e) The lawyer, for the drafting of new legislation, and for a judicial understanding of the rights of persons and the rights of property within the law.

(f) The executive and public administrator, for knowledge of practical politics, the place of public opinion, and the actual difficulty of getting things done.

It is not easy to say how far it is reasonable to expect knowledge and understanding of all of these fields in a single individual, especially if one keeps in mind that in application there is a call for a sense of proportion and good judgment in the adjustment of the requirements of the various fields combined in state planning. There must be constant regard also for the limiting necessities of existing conditions, combined with initiative, leadership, and imagination in conceiving of new ways of meeting old conditions, and resourcefulness in grasping and solving new problems. Moreover, state planning, as carried on at the present time, is involved in the baffling complications of unemployment, recovery, and reform. Even in more normal times these complications will remain.

Landscape architects who are attracted to public work have a natural call toward state planning. For the landscape architect has always considered buildings or other structures in relation to site and topography. He is always a *planner of land*, and frequently a large-scale land planner. He has instinctive regard for natural resources, both material and esthetic, and their value for recreation, and for other community uses. He has a flair for the outdoor world. He has experience in broad design and in the arrangement in convenient, orderly, and agreeable fashion of a great variety of structures which themselves are often the work of engineers or architects. Thus the landscape architect has turned naturally with the evolution of our times from the planning of estates to public parks, parkways, and boulevards; from boulevards to suburban development and land subdivision; from land subdivision to neighborhood unit development and new towns and from new towns to the orderly improvement of whole states and regions, and there has been a development, step by step, in the professional technique of planning to meet the requirements of wider and still wider fields. The landscape architect is naturally a pioneer.

An analysis of the list of consultants who are now engaged in regional and state planning under the National Resources Board, based upon their educational background, shows that the profession of landscape architecture is contributing more than its proportional share among the planning and other professions:

Landscape architects	15
Architects	4
Engineers	16
Others	12
	47

Of the 15 landscape architects, 5 have been appointed as consultants to two states each. Eleven of the 15 have been engaged

more or less in city planning and similar work heretofore. Of the 47 planning consultants, it is to be noted that the numbers of those educated in landscape architecture, in engineering, and in the miscellaneous group of professions (including architecture) are nearly equal.

The 12 appointees other than landscape architects, architects, and engineers are drawn from other professions as follows:

Economists	4
Chamber of Commerce executives	2
Social welfare worker	1
Lawyer	1
College president	1
Newspaper man	1
Unclassified	2
	12

Of the 12 consultants listed in this group, one was appointed to two states.

In addition to the planning consultants, "land planning consultants" have been appointed by the National Resources Board, as follows:

Regional land consultants	11
Land planning consultants	50
	61

Of the 61 consultants in the two groups listed above, 8 have been appointed to more than one state.

Changes now occurring in modern life will affect all the plan-making professions and the fields in which they are employed, including state planning. A brief listing of these changes would include the following:

1. More leisure.
2. Economic adjustments.
3. Increased desire for community and state security.
4. Checking of over-specialization, producing wider professional outlook and appreciation.
5. Increased demand for trained planners in broad fields.
6. Greater regard for widespread social welfare.
7. Co-ordination through planning.

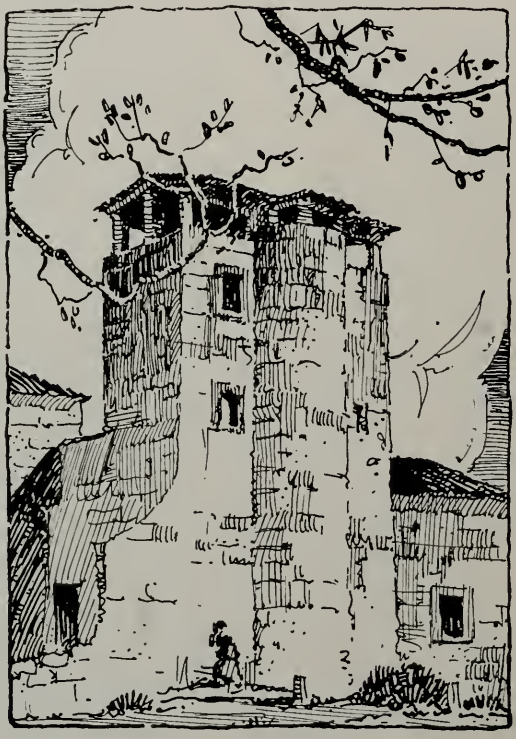
As to the future, present trends seem to justify an encouraging outlook which might be summarized in the following way.

1. Thanks to the initiative of the National Resources Board, state planning and control through zoning and the planning of groups of related states are here,—and here to stay.
2. A new era is drawing for *local* planning and zoning. There will be more of it, and it will be of constantly improving quality, we hope and believe.
3. Planning now occupies a more vital place in the national economy. This change is vividly illustrated in the dramatic programs for public works, conservation of natural resources, slum clearance, and low-cost housing; in the creation of the Tennessee Valley Authority, and in the amazing accomplishments in a year and a half of the National Planning Board and the National Resources Board. The cause of planning has been endowed.
4. It is reasonable to believe that the qualifications that many landscape architects have shown for city planning will carry over to state planning. In many respects state planning is a more natural field for the landscape architect. Given a background of liberal studies and a technical training with as wide an outlook as landscape architecture, a man with good habits of application and observation can carry his self-education a long way,—especially if he can put his heart as well as his head into the subject. Nevertheless, the character and scope of state planning are likely to draw men to serve as consultants from at least as wide a field as the present list covers.
5. Most important of all will probably be the gradual occupation of a fairly well-defined planning field by a limited number

of naturally gifted first-class men, who will be trained in planning schools, such as that at Harvard, deliberately set up for the purpose. This group will furnish a larger and larger proportion of the planning consultants of the future. They will not be narrow specialists (in the ordinary sense) but broad men sharpened to a point.

6. Finally, it would seem inevitable that for every planning consultant occupied in state and other broad comprehensive phases of planning, there would be a demand for many times that number of landscape architects for the design and execution of public projects, provided men are available with the proper education, the professional temper for public works, and the right assortment of personal qualities. There should be added knowledge of certain related city planning subjects. Unless this work falls into the hands of other professions, the American Society of Landscape Architects may easily double its membership in the not too distant future. Here are problems in education, in professional practice and organization, and in the making of public opinion beyond the range of a brief paper.

It's all a challenge to meet new conditions in a sound and practical way, isn't it? "A race preserves its vigor," wrote Professor Whitehead, "so long as it harbors a real contrast between what has been and what may be; and so long as it is nerved by this vigor to adventure beyond the safeties of the past. Without such a spirit of adventure, civilization is in full decay."



Apartments

by Frederick Jennings

● *Single Dwelling in Oakland Modernized into Four Three Room Flats, Brings Owner Substantial Income*

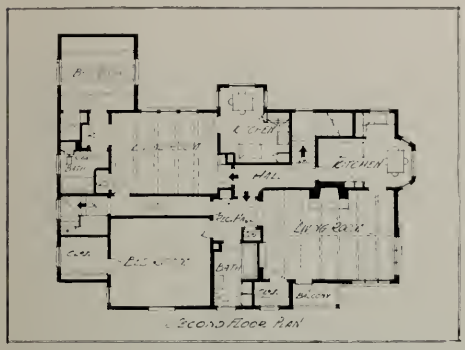
THE house at 1456 First Avenue, Oakland, California, served Mr. A. G. Patterson for a quarter century as his private home. Increased realty values recently prompted the present owner, J. E. Patterson, to employ an architect to remodel the house into four three-room apartments. Although the original dwelling was well built and was still a better single family home than many others in the neigh-

RESIDENCE OF J. E. PATTERSON, OAKLAND, BEFORE AND AFTER REMODELING INTO FOUR THREE ROOM APARTMENTS
Chester H. Treichel, Architect

LIVING ROOM, J. E. PATTERSON APARTMENT HOUSE, OAKLAND
Chester H. Treichel, Architect

LIVING ROOM, J. E. PATTERSON APARTMENT HOUSE, OAKLAND
Chester H. Treichel, Architect

borhood, mounting taxes and a growing demand for apartment house accommodations in the locality influenced the owner to alter the residence into income property.. The improvements involved complete re-arragement of the interior with modern mechanical equipment, such as



TYPICAL TWO-APARTMENT PLAN, BUILDING FOR J. E. PATTERSON
Chester H. Treichel, Architect

plumbing, heating and refrigeration. Outwardly, the appearance of the house was changed from rustic to stucco with a hand made tile roof in place of shingle. Chester Treichel, the architect, has successfully preserved a homey atmosphere about the place by avoiding a treatment other than that suitable to domestic architecture.

All four apartments have been occupied continuously since the improvements were completed—a rather remarkable record in view of the times and the constant moving about of families with diminished incomes. The owner is now receiving a splendid return on his investment—a pointer for other property owners whose places are running down and eating up taxes and insurance.

Much of the interior wood work of the original home has been preserved because of the unusual excellence of both material and workmanship. All the hardwood paneling is Koa wood brought here from the Hawaiian Islands.

MAYA DESIGN

[Concluded from Page 28]

The elevation from the lake seems very Classic but in reality is typically Yucatecan Maya. The long, narrow plan has again given us a horizontal building, the facade of which has been divided in two. The columns have been given Classic proportions in height but have retained their bulkiness in the shafts and in the caps. The pylons at either end represent huge conventionalized faces with the doors as open mouths. The retaining wall at the edge of the lake may have been seen in any city of Yucatan in the brightest days of the Maya civilization.

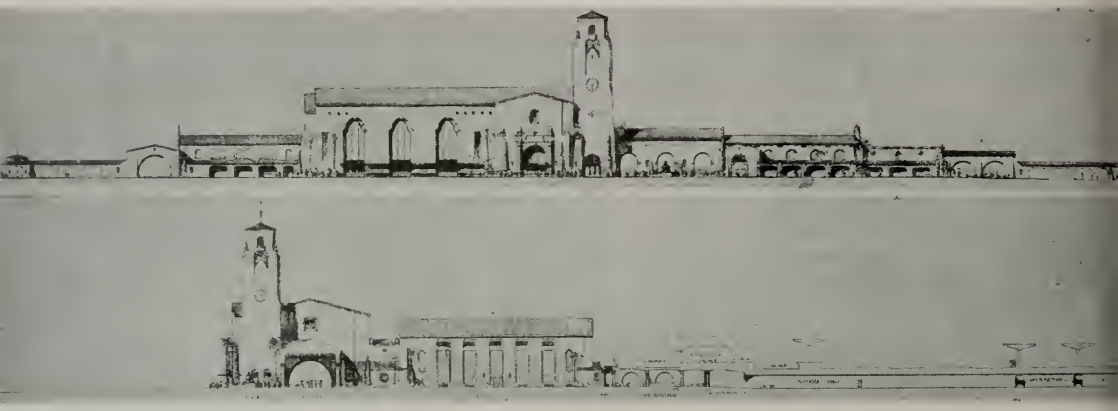
Considered as a large unit, the design is quite modern in massing and in spirit, although again it is typically Maya. The plan, with its large court, its low, lengthy buildings, its rambling corridors, and the sacredness of the Council Chamber, all suggest Maya. Even the construction—limestone veneer about a structural core—is either Maya or modern.

Maya Buildings in This Country

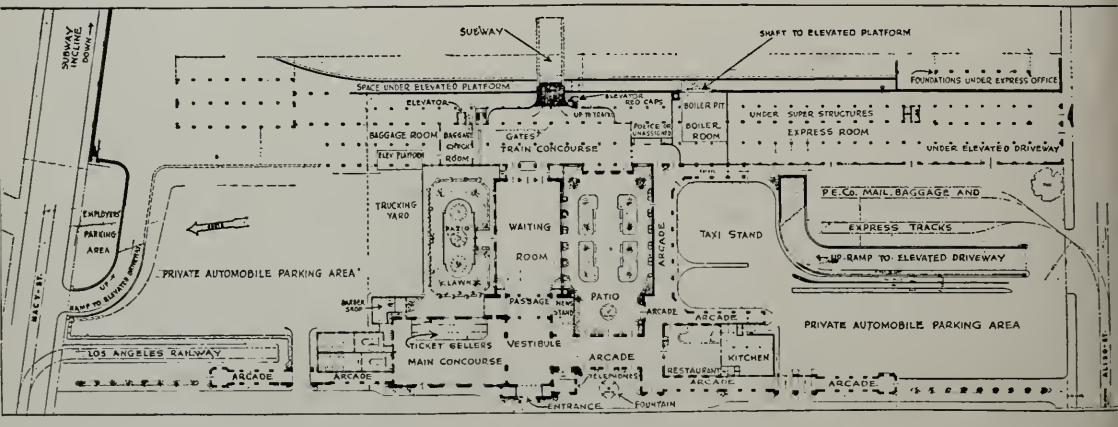
Thus we have a conception that is practical as an up-to-date structure for the tropics and yet has incorporated in it all the underlying fundamentals of the original Maya design and construction. Perhaps, as one architect declared, it would be absurd to actually reproduce a Maya building. As he claims, it perhaps would fail to express the concerted, strong American spirit of modern times. However, after looking about the country at the productions of the architects who have accepted this point of view, we wonder if a Maya building, reproduced exactly, even to its meagrest detail, could possibly be any more out of place in this country than their own modifications. One is almost tempted to promote a wave of Mexican immigration to

our own country and then hope that they gain a cultural foothold here as they did centuries ago in Yucatan.

So we must agree that we will modify this style only if we base our foundation on a knowledge of the essentials. Then our design not only will be good Maya but perchance even decent modern. It will be refined, soft and pleasing to the eye, and not spectacular, wierd, and unpleasing. Then it has possibilities also of becoming "typically American."



ELEVATIONS UNION PASSENGER RAILROAD TERMINAL, LOS ANGEL
John and Donald Parkinson, Architects



PLAN, UNION PASSENGER RAILROAD TERMINAL, LOS ANGEL
John and Donald Parkinson, Architects

Racketeers

by A. A. Brown

● *Unscrupulous Operators Using Inadequate Methods to Rid California Buildings of Termite Pest*

IN issuing temporary instructions for the registration of structural pest control operators, Mr. William G. Bonelli, Director of the Division of Professional and Vocational Standards, says:

> "This Act is plainly an attempt by the Legislature to stimulate confidence in the structural pest control industry, in order to stop the ravages of termites and similar infestations which are causing such tremendous financial losses in this state. Racketeers in this business have made it almost impossible for legitimate operators to continue, and have so frightened the public that much necessary work has been left undone."

This warning by Mr. Bonelli is most timely, and he is to be commended in his effort to protect home owners from unscrupulous operators.

The records of the San Francisco Termite Survey disclose the interesting fact that, of 96 buildings inspected and which have been recently repaired, 68 of them were found to be infested by wood-destroying insects. Of 27 buildings repaired during the early months of 1935, twenty were found to be infested with termites. In many instances inspectors from the San Francisco Termite Survey have been greeted with the statement from property owners that there were no termites to be found in their buildings since "they had recently had these pests exterminated from the entire structure by a termite expert." While the inspectors found some evidence that such eradication had been attempted, the methods employed proved to be entirely inadequate: as indicated by the above records, termites were continuing their depredations.

The general impression gained from the numerous inspections made of the work done by these so-called experts, leads one to the conclusion that too much emphasis is being placed on price, and but little upon quality. The records of those buildings repaired during the present calendar year is a case in point: had the work of exterminating these pests been well done, termites should not be found infesting three out of four buildings so recently repaired. Once termites have become established in a structure the work of eradication should be done in a thorough-going manner. Otherwise the expenditure will prove to be a total loss. It is unfortunate that termites usually select the hidden parts of a structure for their destructive activities, such as the underpinning, posts, and sills. For this reason it is possible for the racketeers to ply their trade and prey upon the credulity of the average home owner.

The above record at hand, showing 71 per cent of the repair jobs thus far inspected to be infested by these pests, is sufficient reason for the property owners to be skeptical of such "experts" and postpone making needed repairs. Certainly one of the

Editor's Note—A number of the important building contractors of San Francisco have been in receipt of inquiries as to who in the building industry is equipped to undertake the eradication and repair work made necessary by the extensive ravages of termites. In order to satisfy this public demand for a new service in the building industry, the P. J. Walker Company and Lindgren & Swinnerton, Inc., have established a department to undertake this type of work.

Intermediate piers should be carried well above the ground line to prevent any possible ground contact by the wood columns. Dirt tends to slide down such embankments and pile up against the wood members, providing easy entrance by termites into the building.

Illustration on the right—

A condition found to be very prevalent in San Francisco structures which have been inspected in the San Francisco Termite Survey. Debris left under buildings, and wood form work buried in the ground is one of the most common breeding places for termites found in buildings. (a) shows debris left under a building; (b) part of termite-infested debris removed from the ground under an apartment house badly damaged by termites.

principal observations gained from the termite survey to date is the hesitancy on the part of property owners to make repairs,—confirming what Mr. Bonelli says in his Bulletin that "Racketeers in this business have made it almost impossible for legitimate operators to continue, and have so frightened the public that much necessary work has been left undone." A very large reservoir of repair work is available for the building trades once confidence has been established in the structural pest control industry. In the San Francisco Termite Survey, approximately 90 per cent of property having wood frame buildings, is found to be infested by wood-destroying organisms, calling for repairs, and in some instances, very extensive repairs.

A few days ago the writer was asked by a home owner to inspect oak firewood stored in the furnace room and from which insects in very great numbers were coming. This was an expensive new home, completed in December, 1934. The wood was purchased some four weeks previously from a company that also specializes in termite control. Adult lead cable borer beetles, and death watch beetles, were emerging from this oak wood in vast numbers. There were fully a thousand or more of these insects on the floor, walls, and ceiling of the room in which the wood was stored, and also in adjoining rooms and halls. This experience explains the comparatively new infestations by beetles in oak trim and oak panels in old homes which for years have been free from such insects, as in each case where new beetles infestations have been found in old homes, infested firewood was always present in the basement.

Opportunity

by Miles L. Colean

● *Federal Housing Act Offers Architects Splendid Chance to Better Their Business Prospects*

THE Federal Housing Administration seeks the co-operation of the architectural profession in raising American housing standards.

Two distinct and equally vital opportunities exist in almost every community in the country, (1) one lies in the type of dwelling structure most typical in a given community and (2) the other with the builders and owners, who, because of location or insufficient means, have not had adequate architectural services made available to them. The possibility of capitalizing these opportunities depends on the extent to which architects can exert their influence in the community.

(1) While American communities have been characterized as being monotonously similar in their organization and appearance, it is none the less true that nearly every city of any considerable age or size has developed a variety of dwelling types more or less peculiar to itself, which through widespread copying have come to be generally looked upon by builders and tenants alike as acceptable housing. Outstanding examples of such local types are the row house of Baltimore, the somewhat different row house of Philadelphia, the "income-bungalow" of Buffalo, the subdivision bungalow of Detroit, the two-flat building of Chicago, the patio bungalow of San Francisco.

This typically local housing has been developed wholly outside of the influence of the architectural profession. The creation of its form, except insofar as it has been dictated by the pattern of land subdivision and by land price, has been largely accidental, and the persistence of its form has been a matter of habit. In no case is there evidence of any conscious thought directed to the evolution of a type especially fitted to the life of the community in which it happens to exist; and rarely will the typical local development be found to conform to any standard of light, air, privacy, comfort or convenience which is acceptable to the informed physician, social worker or architect.

Without some positive force being brought to bear, the prospect of improvement in the character of this housing, which comprises the shelter of a substantial proportion of the population, is slight; and, due to the ingrained habits of developers and builders and to the sentiments of owners and occupants, resistance to change is extremely strong.

The only force broadly available is that of the architectural profession as it may be exerted through its local professional groups and organizations. It is vital to the future of our civic development, as it is possible of development as a source of remunerative endeavor, that architects become acquainted with the housing typical of their

An open letter to the architectural profession by the Technical Director of the Federal Housing Administration.

communities, and that they study whatever causes have prompted its existence and gauge the sentiment which makes for its persistence. Then they can develop such improvements in type or such changes of type as, while satisfying local requirements and sentiments, will produce housing that is more healthful and more livable.

(2) The second opportunity lies in the field of small structures everywhere and of dwellings of all types in the small communities. Neither the small dwelling in the large center nor the majority of dwellings in small centers has to any important degree known the benefit of architectural service. To some extent the commercial stock plan has offered a partial substitute, but in a considerable number of cases any drawings or specifications worthy of the name are nonexistent, while anything corresponding to architectural supervision is unknown. The result is not only that the dwellings in the classes mentioned are usually poorly planned, ill-adapted to locale, unattractive in appearance, and uneconomical in their utilization of materials, but that the inadequacy of contract documents and of supervision leave buyer and builder alike subject to unforeseen costs.

Here again is a matter which is probably best attacked through group action. The individual architect, due to inexperience and to lack of sufficiently broad contact, is frequently unable to work profitably in this field. Moreover, it is not the individual practitioner who is to sell himself but the whole idea of architectural service which must be sold. Widespread changes in professional techniques and practices must be adopted in order to make architects effective in this type of work. Group action, certainly at the outset, seems advisable.

The two types of housing which have been referred to constitute easily eighty per cent of the residential building units of this country. The magnitude of this field provides opportunity for millions of dollars in fees which the architectural profession through its neglect has lost to itself, just as the community has lost the values arising from sound, economical and comfortable dwellings. Ready-made answers to these problems are not to be found, and satisfactory solutions, if reached at all, will be reached only after the most diligent and whole-hearted study and experiment.

In addition to the problems outlined above, in many communities there exists an absolute lack of knowledge of the value and technique of providing adequate drawings, specifications and other documents as the basis for the contract when building a home. In many areas it is almost impossible to secure such documents because the trained personnel does not exist. The Federal Housing Administration requires such documents for a commitment to insure a mortgage for new construction and it is finding it extremely difficult to secure these in adequate form in many localities. The provision of these documents is very important, and time spent in publicizing their essential value should result in a greater appreciation of their value and the value of the services of an architect.

The possible rewards, however, which await success are not only in increased income but in an increased influence of the profession on the social and economic world. This objective merits all the efforts which can now be applied to its attainment. The Federal Housing Administration will be glad to co-operate with any such endeavor in communities where its offices are located, in conjunction with its avowed purpose to raise the standard of housing and to bring about greater activity in that branch of the construction industry.

For the past few years, the inactivity of the building industry has greatly limited

the architectural profession. To stimulate residential building the Federal Housing Administration has launched a program which, through the insurance of loans (1) refinancing existing homes and (2) mortgages for new homes, is designed to induce lending institutions to loan money. The proper establishment of a stabilized mortgage market, and the provision of a market for labor and materials dependent on an increased building program, is a vital issue at present. If the architect is prepared to educate, not only his clients but the potential clients in his locality concerning the importance of the Federal Housing Administration program, he will do much to create confidence and stimulate building, resulting in a direct benefit to the architectural profession. The architect is the logical general advisor for his client, and should be prepared to assist him in the study of the financial set-up and to recommend the most appropriate type of financing in addition to offering the traditional architectural services in the design, construction and supervision of the client's project.

For the information of architects who desire to aid and to participate in this work it is suggested that heads of local groups of architects meet with the Chief Architectural Supervisor and develop a concerted program of action along the lines of the insurance program outlined in the following notes.

Eligible Mortgages

Title II of the National Housing Act (1934) provides for a *Mutual Mortgage Insurance* system for loans on residential properties. These include dwellings for from one to four families and low-cost housing developments for a number of family units located in one or more structures. On the former types of buildings, mortgages may be insured when they do not exceed $16,000, represent not more than 80 per cent of the appraised value, and are amortized monthly over a period of not more than twenty years. On low-cost housing projects, a maximum amortized mortgage of $10,000,000 may be insured. The Federal Housing Administration is permitted to insure the refinancing of existing properties up to $1,000,000,000 and to insure a similar amount of mortgages for new construction.

Advice Clients on Federal Housing Administration

The architect should be fully informed about this plan of insurance and the policies of the Federal Housing Administration. He should be in a position to give his client accurate information on the requirements for eligible properties, procedure in making applications for loans, lending agencies cooperating with the Federal Housing Administration and other data which will facilitate the financing of his client's property under the Mutual Mortgage Insurance plan. Both the architect and the Federal Housing Administration may benefit by cooperation in placing this system before the public.

Federal Housing Administration Circulars

The Federal Housing Administration offers a variety of comprehensive data which will be of value to the architect in his understanding of the regulations and policies which govern the insurance of mortgages on residential properties. Since the bulk of the architects' clients are interested at present in residential structures, the architect should study the series of circulars. They may be secured from the local District Insuring Office or the Federal Housing Administration, Washington, D. C.

CIRCULAR NO. 1—MUTUAL MORTAGE INSURANCE (*Revised June* 24, 1935)

This circular gives the Administrative rules of the Federal Housing Administration for Mutual Mortgage Insurance, and includes the regulations governing the approval of mortgagees, a list of institutions eligible as approved mortgagees, the procedure for application to these agencies or the Federal Housing Administration, or both, and the types of mortgages eligible for consideration by these agencies. It defines the qualifications of eligible mortgagors and the general rules determining eligible properties, as well as definitions of terms used in all sections of the rules. It sets up limits, rates, and permitted charges on insured mortgages, classifies the types of mortgages as they relate to risk characteristics, maturity dates, premium charges, etc., and gives other valuable information relating to the rights and duties of approved mortgagees, and assignments. A copy of the National Housing Act (1934) with specific reference to Title II may be consulted, but the above circular covers the essential portions of this Act.

CIRCULAR NO. 2—PROPERTY STANDARDS

In keeping with its stated aims, i.e., "the improvement of housing standards and conditions" the Federal Housing Administration has set forth both *minimum* and desirable property standards covering neighborhoods, land utilization, designs, plans, accommodations, construction, and service and equipment. This is an attempt to maintain high standards where they exist and raise them elsewhere. It is important that the architect be familiar with these, for they establish the physical requirements for properties which constitute eligible security for mortgage loans. The Federal Housing Administration believes that the aim of improving housing conditions by setting up standards for light, ventilation, construction, etc., aids in the realization of economically sound or stable residential real estate values.

CIRCULAR NO. 3—LOW-COST HOUSING

The requirements for the insurability of mortgages on multi-family low-rental housing projects are set forth, and serve as a guide to the preparation of an application for the insurance of a mortgage for a housing development. It lists the information which will be required on rentals, neighborhood characteristics, economic factors and other data necessary for the proper judgment of the need for low-rental dwellings and of the feasibility of the solution as outlined by the project's sponsor. It outlines application procedure which differs from that given in Circular No. 1 for the insurance of mortgages on individual one to four family homes.

CIRCULAR NO. 4—OPERATIVE BUILDERS

Circular No. 4 states the policy of the Federal Housing Administration in assisting the operative builder, and defines the special regulations covering the various types of insured mortgage committments, and the method for the submission of these projects. The Federal Housing Administration co-operates with the architect in its attempt to stabilize this branch of the building industry and open the way for his employment by establishing sound property standards. The architect should be prepared to advise these clients as well as the individual home owner.

CIRCULAR NO. 5—SUBDIVISION DEVELOPMENT

Architects recognize the importance of controlled community development, both from the standpoint of a desirable social and physical environment and the stabilization of property values. The Circular states the policy of the Federal Housing Administration with regard to subdivisions and the standards by which it determines the eligibility of properties located within them upon which insured mortgages may be de-

sired. It sets up minimum as well as desirable standards for new developments, and further recommends methods for overcoming defects in existing subdivisions. It seeks to prevent irrational urban growth by requesting statements on demand and marketability of residences located in these areas, and outlines the procedure for the commitments to insure properties. These applications are made direct to the insuring office in the territory in which the subdivision is located.

General

The architect should be familiar with the various methods of making application for insured mortgages to approved mortgagees and the Federal Housing Administration, and with the fact that it is possible to make direct application to the Federal Housing Administration. The architect should know the approved mortgagees located in his neighborhood. It will be to his advantage if he becomes acquainted with the state Federal Housing Administration Director and the underwriting staff, including the chief underwriter, mortgage risk examiner, valuator, and the architectural supervisor. These contacts will be valuable in establishing a source of information and permit greater co-operation. Also he should be acquainted with the appraisal methods and the method of risk-rating properties, in order that he may better advise his clients concerning the factors which in the belief of the Federal Housing Administration make for stability of real estate values.

Applications for Individual Mortgages

It will be valuable to study Federal Housing Administration Form No. 2004—"Mortgagor's Application for Loan"—and discuss this with the local Federal Housing Administration representatives. These applications should be made to an approved mortgagee.

Applications for Subdivisions

It is the policy of the Administration to request information on the subdivision in which the mortgaged property is located. Federal Housing Administration Form No. 2084—"Subdivision Information Form"—should be consulted. This requests information on the physical aspects of the site, accessibility, utilities, streets, parks, restrictions, planning, finance and other pertinent data. An informal opinion may be secured on a new or undeveloped subdivision from the Federal Housing Administration Insuring Offices and will often save both client and architect time and expense if the area is unsuitable for sound insured mortgages or if by consultation the subdivision may be made to meet the standards as set up by the Federal Housing Administration.

Applications for Low-Cost Housing Projects

Low-cost housing provides for loans to public housing authorities, private limited dividend corporations, and other agencies restricted by law or the Administrator in relation to rents, rates, methods of operation, etc. The architect may submit a survey of the proposed project to the Federal Housing Administration, Washington, D. C., on Federal Housing Administration Form No. 2013, "Initial Information Required of Sponsors of Low-cost Housing Projects," accompanied by plans and specifications. He may secure preliminary informal opinions from this source prior to the filing of a formal application.

Construction Loans

Where a commitment to insure a mortgage on a new dwelling has been issued, it will usually be the case that the prospective mortgagee will make a construction loan to the applicant. If for some reason this arrangement is not feasible, construction loans should be obtainable from any member institution of the Federal Reserve System, since such loans based upon a commitment for an insured mortgage are eligible for rediscount.

When low-cost housing projects are involved, the insured mortgage becomes effective at the outset of the project and the funds are paid out as the construction work is done.

In Conclusion

The Federal Housing Administration *Mutual Mortgage Insurance Plan* with the proper education of the public, can be one of the greatest factors in the revival of the American building industry. The architect is in a position to take advantage of this program, and the Federal Housing Administration wishes to co-operate by making available to him information concerning its program and its regulations in order that he may make use of the plan to develop work for himself and at the same time to aid in accomplishing the aims of the legislation, improved housing standards, stabilization of the residential real estate and mortgage markets and a revival of the building industry.

The Federal Housing Administration invites the submission of alternate methods for accomplishing these improvements in the building industry.

ENGINEERING ACHIEVEMENTS

Third and Final Installment of Paper by J. B. Lippincott, M. A. S. C. E.

Policy in 1902 of the City of Los Angeles Relative to its Water Supply

The Pueblo was founded in 1781. The increase in population of the modern city has been from 11,183 in 1880 to 1,300,000 in 1934. Its growth curve is closely following that of the City of Chicago. The following outline is presented to illustrate the statesmanship of those who directed the destinies of the water department of the town a generation ago.

The original water supply obtained by gravity from the Los Angeles River was first used for the irrigation of the Spanish pueblo lands which embraced four square Spanish leagues, equal to 28.01 square miles. The ownership of the land was then communal. As the city grew the irrigation supply was gradually changed to domestic. A study of the underground water supplies of this region was begun by the U. S. Geological Survey in 1900. It became apparent that all the local water surface and underground was required for the outlying territory and that it was beginning to be overdrawn. The Board of Water Commissioners of the city as well as its Chief Engineer, Mr. William Mulholland, were of broad vision and public spirit. They realized that if the city invaded the local underground sources it would lead to the injury of communities that were commercially tributary to it. The policy was therefore adopted of bringing in as large a new supply as was possible under the bonding limits of the city and to obtain it from a region where the minimum injury would be caused by the exportation of its water. The city was the only available institution financially able to pay for such a project.

Mr. Fred Eaton, former city engineer and mayor, about 1904 conceived the possibility of conveying the waters of the Owens River to the city and of generating power along the line of the proposed conduit. The private water company at the termination of its franchise in 1898 had been acquired by the city in 1902. Mr. Eaton brought to the

attention of Mr. Mulholland his views on the Owens River supply. No adequate maps were available upon which to base a judgment as to the feasibility of this bold project. Both Eaton and Mulholland were engineers of remarkable courage and judgment and were of the pioneer type. They went over the intervening 259 miles between the Owens River and Los Angeles with aneroid barometers and reached a preliminary conclusion that the line was feasible. The aqueduct was designed to be as large as the financial resources permitted. The work was completed in 1912 by day labor with William Mulholland as Chief Engineer and the writer as his principal assistant, within the estimated cost and time. The capacity of the aqueduct is in excess of the 400 second feet that it was designed to carry. To the head of distribution its length is 238 miles through a remote mountain and desert region. To the business sections of the city its length is 259 miles. Power plants have been installed near the city having total heads of 1644 feet. At that time the project was a record in aqueduct construction.

The civic policy adopted for the disposal of the water of the Owens River Aqueduct is of especial interest at present as the same problem is now presented to the Metropolitan Water District for its larger Colorado River supply.

Under the terms of the right of way grants from the Federal Government none of the Owens River aqueduct water could be sold to privately owned distribution companies. A board of engineers was appointed by the city composed of Homer Hamlin, W. H. Code and John H. Quinton, all members of the American Society of Civil Engineers, to study the economic and political problems involved in the distribution of its water. They found that if an adequate supply of water for irrigation was furnished to lands adjacent to the city that the town then could expand over such area and the use of the water could be transformed from agriculture to domestic service by the land owners. It was recommended that 135,000 acres be added to the city for this purpose. It was considered axiomatic that water once put on to any area could not be subsequently removed. An attempt to sell under temporary contracts outside the boundaries of the town was rejected by the voters of the city. The areas over which the water should be most advantageously distributed was determined, considering the probable expansion of the city. This area was limited to fit the capacity of the aqueduct for service. The rule was adopted that no water should be distributed outside of the city.

The policy of putting the water promptly into service had a legal bearing, as beneficial use is a measure of the water right. It was not sufficient to assume that the Owens River belonged to the city and postpone its beneficial use.

The city established both a domestic rate and a lower agricultural rate of $6.50 per acre foot, which latter covers the operating cost of the aqueduct and depreciation but not fixed charges. This cost farming interests could afford. This policy put the water to use promptly, established an extensive food supply for the city and greatly developed suburban lands. This policy has stimulated the growth of the city and produced revenue.

The city has utilized the power possibilities along the line of the Owens Valley aqueduct with equal success. An electrical distribution system has been obtained both by purchase of existing private plants and by its own construction. Low electric rates have been established particularly for industrial uses, and today the gross revenue of the Power Bureau exceeds that of the Water Department. Both of these institutions have been self supporting and

have been operated on the basis of cost to the consumer. No outside financial aid was asked for or obtained.

The city is now extending its Owens Valley Aqueduct into the Mono drainage basin north of Owens River, in order to assure a full surface supply during the driest cycles. When this diversion is accomplished it will deliver water from the eastern slopes of Tioga Pass while San Francisco will obtain water from its western slope. By the addition of this Mono supply the city will assure enough water for 2½ million people and also increase power output in existing plants.

The building of the Owens Valley Aqueduct was promptly followed by the initiation of the San Francisco Aqueduct which is 138 miles long and with an ultimate capacity of 400 million gallons daily (600 second feet). It delivers water from the Tuolumne River to the bay region. Simultaneously the towns on the east side of San Francisco Bay built another large aqueduct to the Sierra Nevada, Arthur P. Davis, Past President of the Society being its chief engineer.

Encouraged by past successes Los Angeles is now assuming leadership for the building of the Hoover Dam for flood conservation of the Colorado River and the production of power, as well as the building of the Colorado River Aqueduct. Thirteen cities have organized a league for this Colorado River aqueduct construction, which will deliver 1,500 second-feet to the coastal region. From the river to the city the distance is over 300 miles involving a pumping lift of 1616 feet. This great work is too extensive to be described in this paper. It has been extensively described in many publications and it is also to be reviewed in the technical sections of this convention. The aqueduct is being well built, with modern equipment. It is recommended that all who can should visit this interesting construction. It will be adequate to supply a population of 7,500,000 people. It is hoped that the same policy formerly adopted and proven in the administration of the Owens Valley Aqueduct may be generally followed by the greater Metropolitan District of supplying domestic requirements and putting surplus water promptly to beneficial use at rates that agriculture can afford.

The building of these four aqueducts and the Hoover Dam is the culmination of California's engineering accomplishments to date.

California Institute of Technology

A review of the engineering achievements in California would be incomplete without reference to Cal. Tech.

The predecessor of the California Institute of Technology was founded by A. G. Troop in 1891. It was expanded, reorganized and endowed by Arthur H. Fleming, a Canadian born lumberman, about 1910. This gentleman gave his entire fortune to the institution, preserving for himself an annuity for his remaining life of $30,000 per annum. It was Mr. Fleming, in collaboration with the astronomer, George E. Hale, then in charge of the carnegie Observatory on Mt. Wilson, that the decision was made to devote the institution to study and research work in pure and applied science.

The famous American architect Bertrand G. Goodhue was engaged to design the buildings and the grounds.

The broad acquaintanceship of Mr. Hale and the organizing ability of Mr. Fleming was responsible for the initial gathering to the institution of such a remarkable group of men so that it has been well said "This spot then is one of the frontiers of human knowledge." There are in the faculty today two members who have received the Nobel Laureate; Robert A. Millikan, physi-

cist, and Thomas H. Morgan, biologist. In a period of five years the presidency of the American Association for the Advancement of Science has been held three times by representatives of this institution.

In the report of the Committee on Graduate Instruction American Council of Education in 1934 the California Institute of Technology having 11 departments is rated with 7 distinguished and 4 adequate.

The laboratory of physics has an annual budget of $100,000, chemistry and biology the same.

This staff and these laboratories are often placed at the disposal of engineers in aiding in the solution of difficult problems. Professor Royal W. Sorensen and other Cal. Tech. engineers in 1924 aided the Southern California Edison Company in the construction of its then unprecedented 220,000-volt transmission line which is 241 miles long. In recognition of this assistance the company built a high tension laboratory for this institution.

An aeronautical laboratory has been built by the Daniel Guggenheim Fund for the promotion of flying. This contains a wind tunnel capable of developing wind velocities of 200 miles per hour. This laboratory is used in the designing of airplanes by Southern California manufacturers. It was here that the models for the Douglas air liner were tested. As a result the speed of this ship has been increased from 190 to 220 miles per hour. Last October there was a great international air race from London to Melbourne. The British constructed 3 racing ships for this event. Holland was represented by one of these Douglas air liners. Another Pacific coast ship, a Boering, was also put in this race. These American planes were standard commercial machines. The American machines carried passengers and mail while the racing planes were light. These two machines, the Douglas and the Boering, finished second and third.

Supplementing the work with aeroplanes the study of meteorology has been advanced at Cal Tech. to such an extent in the forecast of weather conditions that all major air lines in the United States are now employing their methods. It is stated that "a graduate of the meteorology course is employed at the present time as meteorologist by each of these air lines." This work is being directed by Dr. Irving Crick.

The laboratories of the Institute are aiding the design of special pumps for the lifting of the water of the Colorado River aqueduct 1600 feet over the divide of the Coast Range.

Prof. R. R. Martell is doing valuable work in the study of earthquake resistant buildings.

The 200-inch reflecting lense for Palomar observatory in San Diego County has been cast and will soon be ground in the laboratory of this institution. The writer understands that this lense will be twice the diameter of any other.

The assistance that this institution is giving for the advancement of the welfare of the state is basic.

Hoover Dam

The Colorado River being both an interstate and international stream involving treaty obligations with Mexico, its regulation and use are essentially a national project. The division of its water is of vital importance to two states in Mexico and seven in the United States. The latter naturally group themselves topographically into those above and below the Grand Canyon. As priority of beneficial use initiates the priority of the water right great projects for diversion to California such as the then proposed Metropolitan Aqueduct and the All-American Canal on the lower river at first engendered opposition from

other states. The upper basin states became apprehensive that extensive early lower river projects would interfere with the ultimate development of upper basin states. The contentions of New York, Pennsylvania and New Jersey over the Delaware gives an eastern illustration of such controversies. The sanction of the government for a great conservation project on the lower river had to be obtained as well as a large congressional appropriation for construction. All the states involved have congressional representatives, especially senators, who had to be satisfied that their constituents were protected.

This situation caused protracted delays and was extremely difficult to adjust. Herbert Hoover, M.A.S.C.E., was at that time Secretary of Commerce. As an engineer he understood the situation and gave his time and ability to the solution of the problem. This resulted in his calling the Santa Fe conference of delegates from all the United States commonwealths involved, in November, 1922, at which the agreement known as the Colorado River Compact was adopted. This provides that in any consecutive 10-year period 75,000,000-acre feet of water must be permitted by the upper basin states to pass down to the lower basin states, which is practically one-half of the water of the river.

Following this compact, Secretary Hoover was instrumental in obtaining appropriations for the building of the dam (which was properly named for him) its power plant and the All American Canal. It was during his administration as President that the sustaining contracts for the sale of power were accomplished, under which the government loan is to be returned with 4 per cent interest. The perfection of all these agreements by Mr. Hoover was a monumental engineering aid to the development of the Southwest, which should not be forgotten in these days when the project is nearing completion.

* * *

The author wishes to acknowledge his indebtedness to Mr. Otto von Geldern, deceased, or information obtained from his articles entitled "Reminiscences of the Pioneer Engineers of California" published in Western Construction News in 1929 and for other data obtained from an article by Mr. J. D. Galloway, presented before the International Engineering Congress in San Francisco in 1915. Mr. F. C. Herrmann, consulting engineer of San Francisco, has also materially assisted by commenting on this paper, and furnishing certain corrections and additions thereon.

HOW CALIFORNIA COUNTIES DERIVED THEIR NAMES

The story of how California counties derived their names is an interesting part of the history of the Golden State. Believing that the thousands of tourists who annually motor over the state's great highway system would like to know how the counties they visit came by their names, Director of Public Works Earl Lee Kelly, at the request of Governor Frank F. Merriam has had prepared from state records a series of brief stories of the origin and meaning of the names of the counties of California, including a few salient facts about each county. Following are the first articles of the series.—Editor.

Alameda County—Created March 25, 1853. The Spanish word "Alameda" means "a public walk or promenade in the shade of trees." Literally, it comes from Alamo, the poplar or cottonwood tree, and it is from the derived meaning of the word, "a public walk," that this county obtained its name.

Long before the white man came to California an estimated 300,000 Indians, divided into numerous tribes, inhabited the larger valleys of the state. Later came the missions and the great ranchos. Alameda County, with scattered bands of Indians, huge haciendas, thousands of cattle and horses, and Mission San Jose, presented a true picture of California during the era of the sailing vessel. Famed for its agricultural wealth, Alameda produces huge crops of fruits and nuts, hay, grain and vegetables, and is noted for its live stock products. Population: 474,883. Area: 732 square miles.

* * *

Alpine County—Created March 16, 1864. This county derived its name from the English word "Alpine," meaning, "of, pertaining to, or connected with the Alps." Its geographical position, lying as it does on the crest of the Sierra Nevada Mountains, made is particularly an alpine county, and hence its name.

Embracing large areas of primeval mountain and forest, Alpine is a land for tourists, the rancher, the mineralogist, the artist, and a paradise for the lover of California outdoors. For many years, Alpine was isolated from the rest of the state, no road to this little gem of the Sierras being maintained. Now several state highways lead to it and the development of its mineral, timber and water resources is bound to come. Population: 241. Area: 776 square miles.

* * *

Amador County—Created May 11, 1854. The meaning of this word in Spanish is "lover of inanimate objects." This county most probably derived its name from either Sergeant Pedro Amador or from Jose Maria Amador, his son. Sergeant Pedro Amador was one of the prominent settlers of California. He was an adventurer and a soldier in the Spanish army, coming to California in 1771, and after serving in San Diego and Santa Barbara was transferred to San Francisco. He died in San Jose April 10, 1824, at the age of 82 years. His son, Jose Maria, was born in San Francisco on December 18, 1794, and was also a soldier and a renowned Indian fighter. He obtained a large grant from the Mexican government, and after the discovery of gold forsook pastoral pursuits and went to the Southern mines on the Mother Lode, where he greatly increased his fortune.

The county of Amador is known as the land of romance and gold. The "Heart of the Mother Lode," it once was the home of Captain Weber, Captain John A. Sutter, Kit Carson, Mark Twain and Brete Harte. The county contains the most extensive quartz deposits to be found on the western slope of the Sierra. Near Jackson, two mines are over a mile deep. Of $610,000,000 in gold produced in the Mother Lode counties, Amador has given $265,000,000. In addition to gold mining, cattle ranches, dairy farms and fruit orchards, this county is one of the most interesting fields of research in California for geologists and mining experts. Splendid state highways lead to all points of historic interest in Amador and to the sites of two of the largest reservoirs in the state. Population: 8494. Area: 601 square miles.

Butte County—Created February 18, 1850. This is one of the original twenty-seven counties of the state, and derived its name from that wonderful topographical formation, now known as the Marysville or Sutter Buttes, which lie in Sutter County and which were named by Michel La Frambeau of the Hudson Bay Company, who visited the northern part of California as a voyager and trapper in the year 1829. The word "butte" is purely a French word, and signifies "a small hill or mound of earth detached from any mountain range."

It was back in 1820 when the first real exploration of Butte was undertaken, and here and throughout Sacramento Valley trappers of the Hudson Bay Company and others worked from 1825 to 1840. The next ten years witnessed first settlements of white men, which increased rapidly after the discovery of gold on the Feather River. At the Cape claim near Oroville 142 pounds of gold were taken out in one day and the largest nugget ever found in America and the second largest in the world was discovered near Magalia, east of Oroville. Butte is a land of diversified agriculture and Northern California's chief orange producer. Rice production now is one of the county's most important industries. Irrigation is undertaken on an extensive scale, the Department of Commerce announcing in its 1930 irrigation census that Butte had 68,219 acres under irrigation. Northern California's first orange tree was planted at Bidwell Bar in 1856 and it still produces regular crops and is used in propagating root stock. Population: 34,093. Area: 1698 square miles.

* * *

Calaveras County — Created February 18, 1850. One of the original twenty-seven counties of California. The meaning of "Calaveras" is "skulls." The county derived its name from Calaveras Creek, which was so named by Captain Moraga of the Mexican army, who headed the first exploring expedition of the Sacramento and San Joaquin rivers and into the Sierra Nevada Mountains, from the fact that he found a large number of skulls lying along the banks of the creek.

According to the diary of Captain Moraga, the history of this abundance of skulls is that the Indian tribes living on the Sacramento and San Joaquin rivers made a desperate war against the tribes of the Sierra, who annually came down to fish for salmon in these streams. This was considered in the light of a trespass, inasmuch as the Sierra tribes refused to allow the valley tribes to go into the mountains to hunt deer and gather acorns. In a battle fought near this creek, the tribes of the valley were victorious, and more than three thousand Indians were killed. Hence the name of the creek, from which the county subsequently derived its name.

Calaveras, one of the Mother Lode counties, is a land of beautiful scenery, possessing many spots of historic interest, a favorite vacation region, and offers many opportunities in mining, lumber business, stock raising, horticulture and viticulture. Several fine state highways lead into Calaveras and to its Big Tree Grove, Moaning Cave at Vallecito, Mercer Cave near Murphys, Angels Camp and San Andreas, immortalized by Bret Harte and Mark Twain, and the ghost towns of early mining days. At San Andreas stood, until 1926, the Metropolitan Hotel, where occurred the "jumping frog" episode made famous by Mark Twain. At Carson Hill was found the celebrated $43,000 nugget of Calaveras. The Stanislaus National Park is a paradise for campers and tourists. The county has a small but prosperous agricultural region especially adapted to olives. Population: 6008. Area: 1027 square miles.

(Next month: Colusa, Contra Costa, Del Norte and El Dorado counties.)

ARCHITECTS READ THE ADS

Below is a copy of a letter addressed to the Pacific Portland Cement Company, following publication in this magazine of a full page advertisement in which was shown a fine picture of the Masonic Temple at Visalia, recently completed from plans by Dragon & Schmidts, architects, of Berkeley:

August 17, 1935.

Pacific Portland Cement Company
111 Sutter Street
San Francisco, California

Gentlemen:

Permit us to tell you that we greatly appreciate your featuring the Masonic Temple at Visalia in your advertisement in the July issue of *The Architect & Engineer*. Several people have mentioned having seen it and commented very pleasingly about it.

We have specified and had your Golden Gate Tan Cement used several times and always with very satisfactory results. Here is hoping we may have other work that will be of mutual interest.

Yours very truly,
DRAGON & SCHMIDTS
Architects

« « « « With the Architects » » » »

EDWIN J. SYMMES

Edwin J. Symmes, prominent architect in Kern County, California, died September 10th at his home in Bakersfield after a comparatively short illness. He was 52 years of age. Mr. Symmes designed many notable school buildings in the southern part of the state and his work received commendation from both the profession and layman. Several years ago a large part of an issue of this magazine was devoted to illustrating and describing buildings which Mr. Symmes had designed in Bakersfield and vicinity. At one time he practiced his profession in San Francisco and was identified with the local Chapter and Architectural Club. He served for several years as a member of the Alameda City Planning Commission. He is survived by a widow and son.

CONCRETE SUBWAY

Plans have been completed by the California State Department of Public Works for a highway subway to be constructed under Peralta and Adeline Streets and San Pablo Avenue, Oakland, in connection with Moss Avenue approach to the Bay Bridge. A reinforced concrete subway with a 44 foot road bed is planned and the cost is estimated at $400,000.

CONTRACTORS ANNUAL MEETING

Annual meeting of the Northern California Chapter, Associated General Contractors, will be held at the Palace Hotel, San Francisco, December 13 and 14. Floyd O. Booe is secretary-manager. The chapter's annual business meeting will be followed by a dinner dance in the Palm Court on the night of the fourteenth.

RENO SWIMMING POOL

The city of Reno has applied for PWA financing to a total of $150,000 for public improvements.

The application calls for expenditure of the money in erecting bridges across Truckee river at Sierra Street and Lake Street and constructing a swimming pool in Idlewild park. It was estimated that the bridges will cost about $38,000 each and the swimming pool $88,000.

BURLINGAME BUILDING ACTIVE

New residence work in Burlingame includes a Monterey type dwelling for Thomas J. Barnes from plans by Angus McSweeney, San Francisco; a stucco dwelling for Claude B. Place from plans by W. C. F. Gillam; a house in Burlingame Hills for Mr. Spellacy from plans by Hugh Kirk and a house in Hillsborough Place for Mr. Jensen from drawings by Mr. Gillam. The George W. Williams Company, Burlingame, is contractor for all four houses.

THEATER ALTERATIONS

Theater alterations are to be made by Nasser Brothers to their property on Fillmore Street, between Turk and Eddy Streets, San Francisco. A. A. Cantin has prepared the plans. Mr. Cantin has also completed plans for rebuilding the opera house at Napa and making it an up to date moving picture theater. The Fox West Coast Theaters will spend $35,000 on the improvements.

C. O. CLAUSEN BUSY

C. O. Clausen, 746-46th Avenue, San Francisco, reports considerable new work in his studio office including two new dwellings in Golden Gate Heights costing $11,000; a house in the Richmond District, costing $8000; a group of six Spanish dwellings on Silver Avenue, San Francisco, and a Spanish house in Redwood City.

WOODSIDE RESIDENCE

Gardner A. Dailey, 210 Post Street, San Francisco, has completed plans for a $25,000 modern dwelling at Woodside for William T. Crowley. There will be fifteen rooms and five baths, slate roof, steel sash, oil burning heat and part steel frame.

TO REBUILD APARTMENTS

The Frank S. Boggs Building in Stockton which was gutted by fire several years ago is to be rebuilt and the five stories of the old walls will be retained. It is planned to have stores on the ground floor and 36 apartment suites above.

PORTLAND SCHOOLS

Wallwork and Dukehart, U. S. Bank Building, Portland, are preparing plans for the following schools:

(1) Barclay school: One and one-half story building containing classrooms, office, library, teachers' rooms, kitchen and lunchroom, estimated to cost $50,000.

(2) Eastham school: One-story brick veneer building to contain classrooms, offices, library and provision for auditorium and gymnasium which will be added later. The estimated cost is $60,000.

(3) Canemah school. One-story brick veneer building to contain classrooms, combination auditorium-gymnasium, library and teachers' room.

TO ENLARGE CAPITOL

Plans for a new building to be added to the present group of capitol buildings have been prepared by Joseph Wohleb, Chambers Block, Olympia, and submitted to E. R. Hoffman, Acting State Director of PWA. The total cost is $860,000 of which the Federal government is asked to supply $387,000. A three-story and basement building conforming with existing buildings to house the Department of Public Lands, Department of Finance, Budget and Business, Department of Education and Liquor Control Board is planned.

MONTANA UNIVERSITY BUILDINGS

University of Montana at Missoula has applied for PWA loan and grant of $250,000 to finance the construction of a chemistry-pharmacy building. Plans of R. C. Hugenin, Butte and Helena, call for three-story and basement building of brick and terra cotta construction.

The University of Montana has also made an application for $180,000 PWA funds to finance the construction of a journalism building.

BELLINGHAM HIGH SCHOOL

F. A. Naramore, Central Building, Seattle, has submitted preliminary plans for a $600,000 senior high school building at Bellingham. The proposed building would include a school and civic auditorium with a capacity for 1800, band and music room of sound-proof construction, greenhouse, and locker rooms, in addition to regular school facilities.

MARIN COUNTY RESIDENCE

George J. Seebe will build a new home in Ross, Marin County from plans by W. W. Wurster, 260 California Street, San Francisco.

PERSONAL

Graham and Painter, Limited, Seattle and Shanghai, is the name of a new architectural and engineering firm composed of John Graham, A.I.A., architect and engineer of Seattle and Shanghai, and W. L. Painter and Co., Shanghai. The Seattle office will be continued in the Graham suite on the top floor of the Dexter Horton Building. The Shanghai headquarters will be located at 668 Szechuen Road.

Harry C. Deckbar has moved from 3202 West Sixth Street to 2117 La Salle Avenue, Los Angeles,

Edward B. Rust has moved from 3870 Wilshire Boulevard, Los Angeles, to 447 Rosemont Drive, San Gabriel.

John A. Baur, associated with Arthur Brown, Jr., is taking a well earned vacation. He will tour Europe and visit many of the foreign countries visited by him in his early school days, including Paris.

Colonel Frederic A. Delano, vice chairman of the National Resources Committee, and chairman of its advisory committee, was a visitor to the Pacific Coast in July. In Portland, Colonel Delano met with members of the Regional Planning Commission and its staff, and of the Oregon and Washington Planning Boards, and with other citizens. Colonel Delano was accompanied throughout his trip, which covered a large part of the United States, by Roger S. Coolidge, of the staff of the Federal Power Survey.

$800,000 HIGH SCHOOL

Over $800,000 PWA funds have been allotted to finance the construction of a high school for which plans were prepared in 1934 by Bird and Van Teylingen, Medical Arts Building, Great Falls. These funds were previously allotted but rescinded and a new contract with the PWA will now be prepared by the Great Falls School District.

ARCHITECT'S BIRTHDAY CARD

Architect George Gove of Tacoma recently mailed to his friends a unique birthday card containing sketches of twenty notable institutional buildings designed by the firm of Heath, Gove and Bell. The pictures are condensed to fill a sheet 11x8½ inches.

OAKLAND FACTORY ADDITION

A two-story brick addition to the Mother's Cake & Cookie Company will be built in Oakland at a cost of $30,000, from plans by W. E. Milwain, 1503 Oakland Avenue, Piedmont.

HOME BUILDING UPWARD

The construction total for July exceeded the monthly volume reported for any other month since March, 1934, when the PWA was at its peak. According to F. W. Dodge Corporation the contract total for all classes of construction reported for July in the 37 eastern states amounted to $159,249,900. During June the volume was $148,005,200 while in July of last year the total was only $119,662,300.

The chief item of significance in the July record is to be found in the continued activity in the residential field, as distinguished from other classes of construction. For residential building, the July total amounted to $48,371,800; this was almost 2½ times the volume reported for July, 1934. The residential total for July slipped about 3 per cent from the June contract volume of $49,832,600 but that is less than is customary at this season of the year.

Improvement in residential building over July, 1934, was shown in each of the major geographic areas east of the Rocky Mountains with the sole exception of the New Orleans Territory (Louisiana and Mississippi combined). The largest relative gains were reported in the Middle Atlantic States, the Southeast, the Chicago Territory and the Kansas City District.

For the first seven months of 1935 residential construction contracts in the 37 eastern states totaled $256,545,400. This is in excess of the total for all of 1934 and compares with a total of only $151,592,500 for the corresponding seven months of last year.

Despite the large improvement in residential work the contract total for all classes of construction covering the first seven months of this year is less than that reported for the corresponding period of 1934. A year ago the total was $973,764,200; this year's total was $855,756,700.

CONCRETE MAUSOLEUM

H. A. Minton is architect and L. H. Nishkian is engineer for an addition to the St. Joseph's Mausoleum at San Pablo, Contra Costa County, for the Roman Catholic Archbishop of San Francisco Diocese.

SAN FRANCISCO RESIDENCE

Preliminary plans are being prepared by W. W. Wurster, 260 California Street, San Francisco, for a new home for Mortimer Fleischhacker in San Francisco.

CLASSES IN ARCHITECTURE

The College of Architecture and Fine Arts of the University of Southern California is to offer twelve classes in architecture during the fall quarter of University College, adult evening division. Twenty-four classes in fine arts also are included in the fall quarter schedule.

Prof. C. Raimond Johnson is to head the course on planning and financing the home. Dealing with the costs and methods of financing, selection of site, materials, and design, landscaping and planning and construction ordinances, the class will meet each Thursday evening.

Architectural design, air conditioning, architectural engineering, estimating building and construction costs, and landscape architecture are among the courses scheduled for the late afternoon and evening.

STATE FAIR BUILDINGS

So successful was the recent State Fair at Sacramento that the directors feel new buildings are urgent next year. The Federal Government will be asked for a substantial grant and if the officials are successful in their request State Architect McDougall will be asked to prepare plans for a new horse show arena, additions to the two grandstands and miscellaneous improvements.

$1,200,000 CHEMISTRY BUILDING

Preliminary plans for a chemistry building to cost $1,200,000 have been prepared by Bebb and Gould, 715 Hoge Building, Seattle, and tentatively approved by the Board of Regents, University of Washington. An application has been made for a P.W.A. grant of $540,000 to aid in financing the construction of the proposed four-story fireproof building.

TULARE HIGH SCHOOL

More than $200,000 will be expended on a two-unit reinforced concrete high school building at Tulare, plans for which are being completed by W. D. Coates, Jr., Rowell Building, Fresno. The structural drawings are being made by F. W. Kellberg of San Francisco. School bonds and a PWA grant will finance the project.

PLAN CITY HALL

The City of El Cerrito expects to spend $23,000 on a new city hall which will contain municipal offices, library and jail. The present city hall will be used by the fire department.

SUPER-HIGHWAY

[Southwest Builder and Contractor]

PUBLICITY has recently been given in the East to a proposal advanced by T. E. Steiner, manufacturer of Wooster, Ohio, for the construction of a transcontinental super-highway 450 ft. wide and 4,000 miles in length as a "means to aid industry recovery." He suggests a route with eastern terminus at Plymouth Rock and western terminus near San Francisco, with only 12 points of entry in the entire length, at or between the larger cities on the route. He would provide four lanes of traffic for automobiles, four for buses and trucks with a 20 ft. graded strip between on which there would be a fence, the space outside the roadways to provide for ditches and landscaping. The cost is estimated, if the type is not in error, at $12,000,000,000, or $3,000,000 per mile.

Since the country has been facing the unemployment problem the building of transcontinental highways has been frequently suggested as an aid to its solution and to promote recovery. None of these proposals have shown an understanding on the part of their sponsors of any phase of such a project. Some have thought all of the unemployed could be provided with jobs in building transcontinental highways; all have shown a lack of comprehension of the practical phases of the work, such as the preliminary engineering studies and preparation of plans, securing rights of way, problems of construction and the probable cost. But none of the proposals have been so ambitious as that advanced by Mr. Steiner. It staggers the imagination of the practical road builder; is too vast to be comprehended by a layman.

Coming from a successful manufacturer who has been accustomed to do some thinking about business and economics, the proposal to build a transcontinental highway on such a scale and impose such a tremendous financial burden on the nation is surprising. We wonder if, in the first place, any attempt was made to estimate the amount of traffic which such a highway would carry, and in the second place, if any effort was made to determine the possibilities of traffic which could be developed over it at the present time and for a period, say of 25 or 50 years. The heaviest traffic count ever taken on a state highway in one of the most congested areas in California was made at a point on the coast highway near Santa Monica six years ago, when more than 53,000 vehicles were checked in 16 hours, and that was carried over a roadway which at the time allowed for not more than half the number of lanes of traffic proposed for this transcontinental super-highway.

This large traffic count on the coast highway comprised a heavy local movement of motor vehicles along the beaches in addition to the through traffic. Eliminating all local traffic, as contemplated on the proposed transcontinental superhighway, it can readily be perceived that all the through traffic which could use it would make a very thin stream. Traveling over it would be like riding in the great open spaces, even in the thickly populated sections of the East and Midwest. In the great West, with its magnificent distances, the vehicles would be strewn out miles apart. If all the vehicles now driven across the continent could be concentrated on this one route, which would be practically impossible because of its location, the count would be less than 1000 every 24 hours.

A transcontinental super-highway of such capacity would, therefore, be something akin to building an auditorium with a capacity of 50,000 in a town where 1,000 persons would be a maximum audience. Obviously, it would not be a sound economic investment. Interest charges figured at 2 per cent would amount to $240,000,000 a year, to say nothing of the cost of policing and maintaining it. Cost of snow removal and keeping it open through the winter alone would be a staggering item. It might be urged, of course, that tolls could be charged against the vehicles using it. But the idea of paying tolls on a public road is not popular. Many would be quite willing to pay, but many more would oppose it as a matter of principle, so any hope of direct revenue from this source would be futile.

Super-highways are coming and we are not attempting to decry them. They will be built when, where and as traffic development justifies them. Highway building is a practical proposition, justifiable only by necessities for transportation and economic or social benefits. There is no present need for a transcontinental super-highway, but there is a need for better transcontinental roads. Several transcontinental routes have been established, serving the southern, middle and nothern belts. The problems involved in the improvement of these routes is better understood by the Federal Bureau of Public Roads, which has made an intensive study of them for years, than by any other agency or any individual. With the financial aid extended to the states by the Federal government for improvement of highway arteries, the bureau is endeavoring to so direct it that the maximum immediate and future benefits may be assured to all sections of the country. In extending Federal aid for roads the government has no favorites.

It is important to the road-building industry that the public should have an intelligent conception of highway construction and its limitations as well as

its possibilities. This industry has become a permanent economic factor in the life of the nation and its interest will be best served by public support of established wise policies and procedures in the development and improvement of highways. Every dollar expended in road building should be used in such a way as to fully justify its expenditure. This is vital to secure the continued financing of highway work by the states and Federal aid.

FAMOUS MEN TO JUDGE $11,000 COMPETITION

Seven men, representative of leading architectural, designing and merchandising thought of today, have agreed to serve as judges for the "Modernize Main Street" architectural competition being sponsored by the Libbey-Owens-Ford Glass Company, of Toledo, and conducted by the Architectural Record of New York City, with Kenneth K. Stowell, A.I.A. professional adviser.

They are Melvin Thomas Copeland, Harvard University; Andre Fouilhoux, New York City; Albert Kahn, Detroit; William Lescaze, New York City; John W. Root, Chicago; Fritz Walker, Cleveland, and Kenneth C. Welch, Grand Rapids, Mich.

The following brief sketches of the judges are of interest:

Copeland—professor of marketing; director of Harvard Bureau of Business Research since 1919; executive secretary, Conservation division, War Industries board, 1918; chairman Bok Advertising Awards board, 1925 to 1928; secretary research commission, National Council of Cotton Manufacturers. Author of "Business Statistics," "Problems in Marketing," "Principles of Merchandising," and contributor to many business publications.

Fouilhoux—of Hood & Fouilhoux, architects of New York Daily News, American Radio Company, McGraw-Hill Publishing Company and many other buildings and co-architects of Rockefeller Center. Mr. Fouilhoux collaborated recently with Donald Hatch to win first prize in the class C modern house competition conducted by General Electric.

Kahn—designer of buildings for Burroughs Adding Machine Company, Packard, Hudson, Chalmers, and Ford motor plants; General Motors and First National Bank buildings in Detroit; also Detroit Athletic Club, Evening News and other Detroit structures; official architect for Aircraft Construction division, U. S. Army Signal Corps, 1917; member National Building Code company, Department of Commerce, Fellow of American Institute of Architects.

Lescaze—a leading exponent of functional modern architecture; co-designer with George Howe of Philadelphia Savings Bank, recognized as the outstanding example today of ultra modern architecture in this country. Modernized his own home and office. Authorities agree both are the "last word" in modern functional design. One of seven architects selected by New York Housing Authority.

Root—of Holabird & Root, architects of Stevens Hotel, Temple Building and Apollo Theater in Chicago; Illinois Life Insurance, Forest Products Laboratories and many other commercial structures; modernization of many Chicago stores and office buildings, including National Cash Register and A Century of Progress structures; won third prize in competition for Chicago Tribune Building. Member American Institute of Architects, American Society of Military Engineers, graduate of Beaux Arts Institute.

Walker—of Walker & Weeks, leading architects of Cleveland and recently active in modernization work. Much of their activities have been widely publicized in recent months by leading architectural magazines.

Welch—vice president of Grand Rapids Store Equipment company; chief of planning and designing for his company, which provides service and equipment for countless stores throughout the United States; has been merchandising and store-planning consultant of hundreds of architects engaged in store designing. Has contributed many articles to magazines.

More than 3,000 architects, representing every state in the United States, entered the competition, which closed August 15. They are competing for $11,000 in cash prizes in four divisions, each carrying first, second and third place awards.

The four divisions represent buildings typical of Main Street everywhere, the food store, drug store, apparel shop and the automotive sales and service station. Submitted plans must be designed to enable ultra modern display of goods and provide such customer convenience that shopping becomes a real pleasure.

Results will be announced in October.

ADDITION TO HIGH SCHOOL

William H. and Harold Weeks have prepared preliminary drawings for a two-wing addition to the High School at Los Gatos, estimated to cost $45,000.

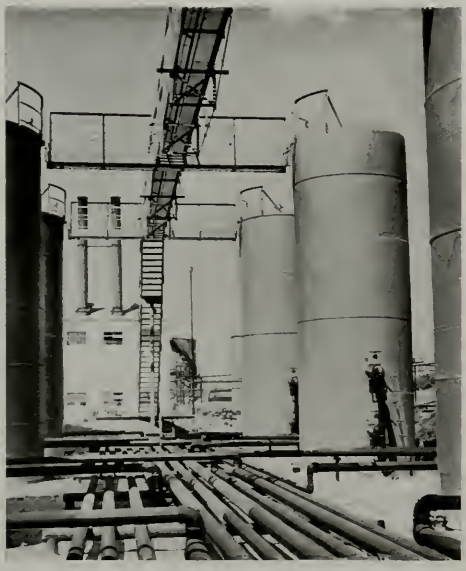
COMPLETION OF PORT SOCONY LAST WORD IN OIL DEVELOPMENT

MANY new engineering and construction ideas have been embodied in the new plant of the Socony-Vacuum Oil Company on Staten Island, New York.

More than 100 tankers, and scores of barges, are expected to load and unload each year at the new port, which can handle more than a quarter of a billion gallons of petroleum products during a 12-months' period.

From Port Socony these products will be shipped by barge, and trucks for distribution to New York and New England.

Port Socony has been in construction for almost a year.



CAT WALKS BETWEEN SETTLING TANKS, PETROLEUM MARINE TERMINALS, PORT SOCONY, STATEN ISLAND, N. Y.

It is rather fantastic in size, with more than eight miles of pipe lines and a tank city which has permanent storage facilities for millions of gallons of petroleum products.

Thirty-nine of these tanks can store at one time ten million gallons of gasoline—enough to run an automobile 150,000,000 miles; twenty-six million gallons of fuel oil — enough to heat more than 17,000 homes for a season; ten million gallons of burning oil—which could provide fuel for five days for the combined populations of New York, London and Paris, and 18,000 gallons of lubricating oil.

Although the new port appears, at first glance, to be a maze of pipes, tanks and apparatus, in reality every engineering device has been used to simplify the terminal operations and increase operating efficiency.

Some of the features of the new port include:

The most advanced fire-fighting equipment of its kind; both fresh water and salt water systems have been installed, together with a Foamite system.

A new dry-powder foam system of fire protection has been perfected at the port and the foam application is deposited on the surface of the oil in the tanks rather than dropped on it from a height.

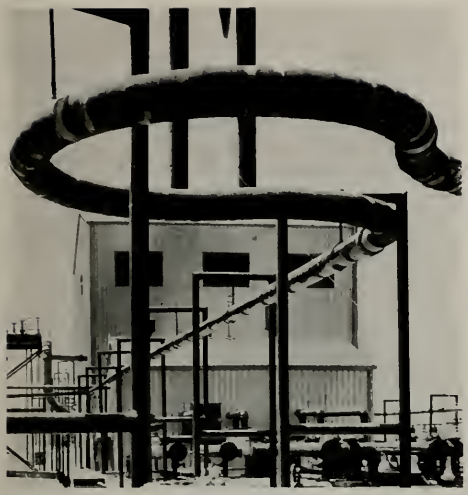
The miles of piping have been laid out to achieve simplicity and directness. The piping arrangement is so constructed that if so desired products may be pumped directly into barges at the same time that they are being pumped into the storage tanks. Tanks have been arranged to provide a maximum of gravity.

There are six groups of connections for steamers and eight groups for barges. Thus, cargoes can be loaded or unloaded fore and aft at the same time. Independent piping has been arranged for eleven different grades of petroleum products.

The port has a complete Ethylizing system for the production of aviation gasoline.

Extensive flood-lighting facilities have been installed for night operation.

More than 2800 feet of paved roadway has been



UNUSUAL VIEW OF STEAM PLANT, PETROLEUM MARINE TERMINAL, PORT SOCONY, STATEN ISLAND, N.Y.

constructed so that trucks can load from a special rack for nine different grades of petroleum products.

Buildings at the new port consist of 16 steel-framed houses—boiler plant, pump house, an Ethyl house, ten Foamite houses for fire prevention purposes, plus three reel houses. There is a two-story marine administration building, a warehouse and a building for garage and offices. These are conveniently located on the water front on land that had been reclaimed through the dredging operation.

BOWLING ON THE GREEN

A number of prominent California architects and engineers are showing keen interest in lawn bowling. Among those who have recently taken to the sport are Claud Barton of Oakland, Henry H. Gutterson of San Francisco and Berkeley, Wilmot Earle, structural engineer, of San Francisco and Clifford Bowie, mining and petroleum engineer of San Francisco and Berkeley.

SKYSCRAPERS USE GAS FOR GENERATING HEAT

by Jas. R. Ferguson

Two large San Francisco office buildings illustrate the trend in heating plant modernization which has become evident in this territory since the advent of economical and highly efficient natural gas fuel. They are the Crocker First National Bank Building and the Financial Center Building.

Steam for heating and hot water in the Crocker First National Bank Building is generated by a plant consisting of two return tubular boilers, one of 90 and one of 120 h.p. These boilers were converted from oil fuel a little over two years ago by the installation of gas burning equipment operating in conjunction with gas fuel regulator and automatic damper control.

Complete automatic operation, according to Chief Engineer William Keay, has been the outstanding feature of the modernized heating plant. Fuel regulators govern the fuel supply according to the actual steam demands, while the automatic damper control insures highly efficient combustion by accurately proportioning fuel and air. Thus, a minimum of attention is required for the operation of the steam plant.

The bank section of the building is heated by air washed and heated in a conditioning system. Air is taken in from the street, passed through a screen of water and heated by radiators to a temperature between 68 and 74 degrees, providing a continuous change of clean, warmed air. This section is also provided with thermostatically controlled radiators. The remainder of the Crocker Building is heated by means of a single pipe system. Greatly increased cleanliness in the boiler room and throughout the entire building has been a further result of natural gas utilization in the boilers.

Two 25 h.p. fire tube boilers generate steam to heat the Financial Center Building at California and Montgomery Streets. These boilers were converted last year from oil fuel to natural gas firing.

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by the installation of Leahy burners and gas fuel regulators.

The results, according to Chief Engineer S. Hasselberg, have been reduced fuel cost, considerable saving in operating maintenance, and increased cleanliness throughout. An efficiency of from 81% to 83% is secured from this steam plant, which heats 96,000 sq. ft. of floor space.

LAND PLANNING

The Pacific Northwest Regional Planning Commission, at a recent meeting, made two urgent recommendations concerning land planning of general interest.

The first of these concerns the prosecution of land classification surveys:

"Because of the basic and vital importance of land classification to many phases of the planning program, and because of the serious handicap of delay in the present plans for classifying problem and opportunity areas, the regional planning commission recommends that adequate funds be made available at the earliest possible date to provide for a complete classification of all lands of the states of the region, the work to be done under the joint sponsorship of state planning boards, agricultural experiment stations, and the Resettlement Administration, with the co-operation of the Forest Service and other interested agencies, and without the hampering restrictions upon employment imposed by the regulations of the Works Progress Administration."

The Commission also recommended the continuation of services of land planning consultants in connection with regional, state and county planning, in spite of the transfer of these consultants to the Resettlement Administration, and the assignment of additional duties to them:

"The regional planning commission urges that the services of land planning consultants to the state and regional planning boards of the four Northwest States be continued, as these services are very necessary to the progress of the land use planning proposed or being carried out by local and state planning boards, and to the progress of local, state and regional planning as a whole. If land planning consultants may not be so assigned, it is urged that consideration be given to appointing associate consultants to carry on with the state planning boards the . . . work and . . . studies which the land planning consultants have started. . .

"Progress has been made in bringing about understanding (of the planning problem) in the four northwest states through the efforts of regional, state and local planning boards, and a large measure of that progress has been due to the assistance rendered by the land planning consultants. . . The planning movement in the four Pacific Northwest states has now reached a point where continuous advisory service must be rendered to state and

Estimator's Guide

Giving Cost of Building Materials, Wage Scale, Etc.

In many instances NRA prices are still in force. Another month may find some material changes in price quotations. A 10% raise is being considered. Amounts quoted are figuring prices and are made up from average quotations furnished by material houses to three leading contracting firms of San Francisco.

NOTE—Add 2½% Sale Tax on all materials but not labor.

All prices and wages quoted are for San Francisco and the Bay District. There may be slight fluctuation of prices in the interior and southern part of the state. Freight cartage, at least, must be added in figuring country work.

Bond—1½% amount of contract.

Brickwork—

Common, $35 to $40 per 1000 laid, (according to class of work).

Face, $75 to $90 per 1000 laid, (according to class of work).

Brick Steps, using pressed brick, $1.10 lin. ft.

Brick Walls, using pressed brick on edge, 60c sq. ft. (Foundations extra.)

Brick Veneer on frame buildings, $ .75 sq. ft.

Common, f.o.b. cars, $15.00 job cartage.
Face, f.o.b. cars, $45.00 to $50.00 per 1000, carload lots.

HOLLOW TILE FIREPROOFING (f.o.b. job)

3x12x12 in.	$ 84.00 per M
4x12x12 in.	94.50 per M
6x12x12 in.	126.00 per M
8x12x12 in.	225.00 per M

HOLLOW BUILDING TILE (f.o.b. job)
carload lots.

8x12x5½	$ 94.50
6x12x5½	73.50

Discount 5%.

Composition Floors—18c to 35c per sq. ft. In large quantities, 16c per sq. ft. laid.
Mosaic Floors—80c per sq. ft.
Duraflex Floor—23c to 30c sq. ft.
Rubber Tile—50c per sq. ft.
Terazzo Floors—45c to 60c per sq. ft.
Terazzo Steps—$1.60 lin. ft.

Concrete Work (material at San Francisco bunkers)—Quotations below 2000 lbs. to the ton. $2.00 delivered.

No. 3 rock, at bunkers	$1.65 per ton
No. 4 rock, at bunkers	1.65 per ton
Elliott top gravel, at bnkrs	1.75 per ton
Washed gravel, at bunkrs	1.75 per ton
Eliott top gravel, at bunkrs	1.75 per ton
City gravel, at bunkers	1.40 per ton
River sand, at bunkers	1.50 per ton
Delivered bank sand	120 cu. yd.

Note—Above prices are subject to discount of 10c per ton on invoices paid on or before the 15th of month, following delivery.

SAND

Del Monte, $1.75 to $3.00 per ton.
Fan Shell Beach (car lots, f.o.b. Lake Mejella), $2.75 to $4.00 per ton.

Cement, $2.25 per bbl. in paper sks.
Cement (f.o.b. Job. S. F.) $2.90 per bbl.
Cement (f.o.b. Job, Oak.) $2.90 per bbl.
Rebate of 10 cents bbl. cash in 15 days.

Calaveras White	$6.00 per bbl.
Meduse White	$8.00 per bbl.

Forms, Labors average 25.00 per M

Average cost of concrete in place, exclusive of forms, 30c pe rcu. ft.

4-inch concrete basement floor ..... 12½c to 14c per sq. ft.

4½ inch Concrete Basement floor..... 14½c to 16c per sq. ft.

2-inch rat-proofing..... 6½c per sq. ft.

Concrete Steps ..... $1.25 per lin. ft.

Dampproofing and Waterproofing—

Two-coat work, 15c per yard.
Membrane waterproofing—4 layers of saturated felt, $4.00 per square.
Hot coating work, $1.80 per square.
Medusa Waterproofing, 15c per lb., San Francisco Warehouse.

Electric Wiring—$12.00 to $15.00 per outlet for conduit work (including switches). Knob and tube average $7.00 per outlet, including switches.

Elevators—

Prices vary according to capacity, speed and type. Consult elevator companies. Average cost of installing an automatic elevator in four-story building, $2800: direct automatic, about $2700.

Excavation—

Sand, 50 cents; clay or shale, 80c per yard.
Teams, $10.00 per day.
Trucks, $18 to $25 per day.
Above figures are an average without water. Steam shovel work in large quantities, less; hard material, such as rock, will run considerably more.

Fire Escapes—

Ten-foot balcony, with stairs, $75.00 per balcony, average.

Glass (consult with manufacturers)—

Double strength window glass, 15c per square foot.
Quartz Lite, 50c per square foot.
Plate 75c per square foot.
Art, $1.00 up per square foot.
Wire (for skylights), 35c per sq. foot.
Obscure glass, 26c square foot.

Note—Add extra for setting.

Heating—

Average, $1.90 per sq. ft. of radiation, according to conditions.

Iron—Cost of ornamental iron, cast iron, etc., depends on designs.

Lumber (prices delivered to bldg. site).

No. 1 common	$33.00 per M
No. 2 common	27.00 per M
Selection O. P. common	37.00 per M
2x4 No. 3 form lumber	17.00 per M
1x4 No. 2 flooring VG	48.00 per M
1x4 No. 3 flooring VG	42.00 per M
1x6 No. 2 flooring VG	48.00 per M
1¼x4 and 6, No. 2 flooring	52.00 per M

Slash grain—

1x4 No. 2 flooring	$39.00 per M
1x4 No. 3 flooring	34.00 per M
No. 1 common run T. & G.	30.00 per M
Lath	5.00 per M

Shingles (add cartage to price quoted)—

Redwood, No. 1	$1.00 per bdle.
Redwood, No 2	.80 per bdle.
Red Cedar	.95 per bdle.

Hardwood Flooring (delivered to building)—

13-16x3¼" T & G Maple..... $120.00 M ft.
1 1-16x2¼" T & G Maple ..... 132.00 M ft.
⅞x3½ sq. edge Maple ..... 140.00 M ft.

	13-16x2¼" T&G	3/8x2" T&G	S-16x2" Sq.Ed.
Clr. Otd. Oak	$200.00 M	$150.00 M	$180 M
Sel. Otd. Oak	140.00 M	120.00 M	135 M
Clr. Pla. Oak	135.00 M	107.00 M	120 M
Sel. Pla. Oak	120.00 M	88.00 M	107 M
Clear Maple	140.00 M	100.00 M	
Laying & Finishing	13c ft.	11 ft.	10 ft.

Wage—Floor layers, $7.50 per day.

Building Paper—

1 ply per 1000 ft. roll	$3.50
2 ply per 1000 ft. roll	5.00
3 ply per 1000 ft. roll	6.25
Brownskin, 500 ft. roll	4.20
Pro-tect-o-mat, 1000 ft. roll	12.00
Sisalkraft, 500 ft. roll	5.00
Sash cord com. No. 7	$1.20 per 100 ft.
Sash cord com. No. 8	1.50 per 100 ft.
Sash cord spot No. 7	1.90 per 100 ft.
Sash cord spot No. 8	2.25 per 100 ft.

Sash weights cast iron, $50.00 ton.
Nails, $3.50 base.
Sash weights, $45 per ton.

Millwork—

O. P. $100.00 per 1000. R. W., $106.00 per 1000 (delivered).

Double hung box window frames, average, with trim, $6.50 and up, each.

Doors, including trim (single panel, 1¾ in. Oregon pine) $8.00 and up, each.

Doors, including trim (five panel, 1¾ in. Oregon pine) $6.50 each.

Screen doors, $4.00 each.

Patent screen windows, 25c a sq. ft.

Cases for kitchen pantries seven ft. high, per lineal ft., $6.50 each.

Dining room cases, $7.00 per lineal foot.

Labor—Rough carpentry, warehouse heavy framing (average), $12.00 per M.

For smaller work average, $27.50 to $35.00 per 1000.

Marble—(See Dealers)

Painting—

Two-coat work	29c per yard
Three-coat work	40c per yard
Cold Water Painting	10c per yard
Whitewashing	4c per yard

Turpentine, 80c per gal., in cans and 75c per gal. in drums.
Raw Linseed Oil—80c gal. in bbls.
Boiled Linseed Oil—85c gal. in bbls.
Medusa Portland Cement Paint, 20c per lb.

Carter or Dutch Boy White Lead in Oil (in steel kegs).

	Per Lb.
1 ton lots, 100 lbs. net weight	10¾c
500 lbs. and less than 1 ton lots	11c
Less than 500 lb. lots	11½c

Dutch Boy Dry Red Lead and Litharge (in steel kegs).

1 ton lots, 100 lb. kegs, net wt.	10¾c
500 lb. and less than 1 ton lots	11c
Less than 500 lb. lots	11½c

Red Lead in Oil (in steel kegs)

1 ton lots, 100 lb. kegs, net. wt.	12½c
500 lb. and less than 1 ton lots	12½c
Less than 500 lb. lots	13c

Note—Accessibility and conditions cause wide variance of costs.

Patent Chimneys—

6-inch	$1.00 lineal foot
8-inch	1.50 lineal foot
10-inch	1.75 lineal foot
12-inch	2.00 lineal foot

Plastering—Interior—

	Yard
1 coat, brown mortar only, wood lath	$0.60
2 coats, lime mortar hard finish, wood lath	.70
2 coats, hard wall plaster, wood lath	.80
3 coats, metal lath and plaster	1.25
Keene cement on metal lath	1.30
Ceilings with ¾ hat roll channels metal lath	.75
Ceilings with ¾ hat roll channels metal lath plastered	1.50
Shingle partition ¾ channel lath 1 side	.85
Single partition ¾ channel lath 2 sides 2 inches thick	2.75
4-inch double partition ¾ channel lath 2 sides	1.30
4-inch double partition ¾ channel lath 2 sides plastered	3.00

Plastering—Exterior—

	Yard
2 coats cement finish, brick or concrete wall	$1.10
2 coats Atlas cement, brick or concrete wall	1.35
3 coats cement finish, No. 18 gauge wire mesh	1.50
3 coats Medusa finish, No. 18 gauge wire mesh	2.00

Wood lath, $5.50 per 1000.
2.5-lb. metal lath (dipped) .17
2.5-lb. metal lath (galvanized) .20
3.4-lb. metal lath (dipped) .22
3.4-lb. metal lath (galvanized) .28
¾-inch hat roll channels, $72 per ton.
Finish plaster, $18.90 ton; in paper sacks.
Dealer's commission, $1.00 off above quotations. $13.85 (rebate 10c sack).
Lime, f.o.b. warehouse, $2.25 bbl.; cars, $2.15
Lime, bulk (ton 2000 lbs.), $16.00 ton.
Wall Board 5 ply, $50.00 per M.
Hydrate Lime, $19.50 ton.

Plasterers Wage Scale	$1.25 per hour
Lathers Wage Scale	1.25 per hour
Hod Carriers Wage Scale	1.10 per hour

Composition Stucco—$1.60 to $2.00 sq. yard (applied).

Plumbing—

From $65.00 per fixture up, according to grade, quantity and runs.

Roofing—

"Standard" tar and gravel, $6.00 per sq. for 30 sqs. or over.
Less than 30 sqs. $6.50 per sq.
Tile, $20.00 to $35.00 per square.
Redwood Shingles, $11.00 per square in place.
Cedar Shingles, $10 sq. in place.
Recoat, with Gravel, $3.00 per sq.
Slate, from $25.00 to $60.00 per sq. laid, according to color and thickness.

Sheet Metal—

Windows—Metal, $2.00 a sq. foot.
Fire doors (average), including hardware, $2.00 per sq. ft.

Skylights—

Copper, 90c sq. ft. (not glazed).
Galvanized iron, 25c sq. ft. (not glazed).

Steel—Structural

$100 ton (erected), this quotation is an average for comparatively small quantities. Light truss work higher. Plain beams and column work in large quantities $80 to $90 per ton cost of steel; average building, $89.00.

Steel Reinforcing—

$85.00 per ton, set, (average).

Stone—

Granite, average, $6.50 cu. foot in place.
Sandstone, average Blue, $4.00, Boise, $3.00 sq. ft. in place.
Indiana Limestone, $2.80 per sq. ft. in place.

Store Fronts—

Copper sash bars for store fronts, corner, center and around sides, will average 75c per lineal foot.

Note—Consult with agents.

Tile—Floor, Wainscot, Etc.—(See Dealers).

SAN FRANCISCO BUILDING TRADES WAGE SCALE

Established by The Impartial Wage Board November 9, 1932. Effective on all work January 1, 1933, to remain in effect until June 30, 1933, and for so long thereafter as economic conditions remain substantially unchanged.

This scale is based on an eight-hour day and is to be considered as a minimum and employees of superior skill and craft knowledge may be paid in excess of the amounts set forth herein.

CRAFT	Journeyman Mechanics
Asbestos Workers	$6.40
Bricklayers	9.00
Bricklayers' Hodcarriers	5.60
Cabinet Workers (Outside)	7.20*
Caisson Workers (Open) Water Work	8.00
Carpenters	7.20*
Cement Finishers	7.20
Cork Insulation Workers	7.20
Electrical Workers	8.00
Electrical Fixture Hangers	7.00
Elevator Constructors	8.68
Elevator Constructors' Helpers	6.08
Engineers, Portable and Hoisting	8.00
Glass Workers (All Classifications)	6.80
Hardwood Floormen	7.20*
Housemovers	6.40
Housesmiths, Architectural Iron (Outside)	7.20
Housesmiths, Reinforced Concrete, or Rodmen	7.20
Iron Workers (Bridge and Structural)	$9.60
Iron Workers (Hoisting Engineers)	10.00
Laborers (6-day week)	5.00
Lathers, Channel Iron	8.00
Lathers, All Other	6.80
Marble Setters	8.00
Marble Setters' Helpers	5.00
Millwrights	7.20*
Mosaic and Terrazzo Workers (Outside)	7.20
Mosaic and Terrazzo Helpers	5.00
Painters	7.00
Painters, Varnishers and Polishers (Outside)	7.00
Pile Drivers and Wharf Builders	8.00
Pile Drivers Engineers	9.00
Plasters and Hodcarriers (See wage scale under Plastering).	
Plumbers	8.00
Roofers (All classifications)	6.40
Sheet Metal Workers	7.20
Sprinkler Fitters	9.00
Steam Fitters	8.00
Stair Builders	$7.20*
Stone Cutters, Soft and Granite	6.80
Stone Setters, Soft and Granite	8.00
Stone Derrickmen	7.20
Tile Setters	8.00
Tile Setters' Helpers	5.00
Tile, Cork and Rubber	7.20
Welders, Structural Steel Frame on Buildings	9.60
Welders, All Others on Buildings	8.00
Auto Truck Drivers—Less than 2,500 lbs.	5.50
Auto Truck Drivers—2,500 lbs. to 4,500 lbs.	6.00
Auto Truck Drivers—4,500 lbs. to 6,500 lbs.	6.50
Auto Truck Drivers—6,500 lbs. and over	7.00
General Teamsters, 1 Horse	5.50
General Teamsters, 2 Horses	6.00
General Teamsters, 4 Horses	6.50
Plow Teamsters, 4 Horses	6.50
Scraper Teamsters, 2 Horses	6.00
Scraper Teamsters, 4 Horses	6.00

*Established by Special Board

GENERAL WORKING CONDITIONS

1. Eight hours shall constitute a day's work for all crafts, except as otherwise noted.
2. Where less than eight hours are worked pro rata rates for such shorter period shall be paid.
3. Plasterers' Hodcarriers, Bricklayers' Hodcarriers, Roofers' Laborers and Engineers, Portable and Hoisting, shall start 15 minutes before other workmen, both at morning and at noon.
4. Five days, consisting of not more than eight hours a day, on Monday to Friday inclusive, shall constitute a week's work.
5. The wages set forth herein shall be considered as net wages.
6. Except as noted the above rates of pay apply only to work performed at the job site.
7. Transportation costs in excess of twenty-five cents each way shall be paid by the contractor.
8. Traveling time in excess of one and one-half hours each way shall be paid for at straight time rates.
9. Overtime shall be paid as follows: For the first four hours after the first eight hours, time and one-half. All time thereafter shall be paid double time. Saturday (except Laborers), Sundays and Holidays from 12 midnight of the preceding day, shall be paid double time. Irrespective of starting time, overtime for Cement Finishers shall not commence until after eight hours of work.
10. On Saturday Laborers shall be paid straight time for an eight-hour day.
11. Where two shifts are worked in any twenty-four hours, shift time shall be straight time. Where three shifts are worked, eight hours' pay shall be paid for seven hours on the second and third shifts.
12. All work, except as noted in paragraph 13, shall be performed between the hours of 8 A. M. and 5 P. M.
13. In emergencies, or where premises cannot be vacated until the close of business, men reporting for work shall work at straight time. Any work performed on such jobs after midnight shall be paid time and one-half up to four hours of overtime and double time thereafter (provided, that if a new crew is employed on Saturdays, Sundays or Holidays which has not worked during the five preceding working days, such crew shall be paid time and one-half. No job can be considered as an emergency job until it has been registered with the Industrial Association and a determination has been made that the job falls within the terms of this section).
14. Recognized holidays to be: New Year's Day, Decoration Day, Fourth of July, Labor Day, Admission Day, Thanksgiving Day, Christmas Day.
15. Men ordered to report for work, for whom no employment is provided shall be entitled to two hours' pay.
16. This award shall be effective in the City and County of San Francisco.

NOTE: Provision of paragraph 13 appearing in brackets ( ) does not apply to Carpenters, Cabinet Workers (Outside), Hardwood Floormen, Millwrights, or Stair Builders.

local boards if they are to function effectively in land and water use planning. . .

"This recommendation is made because of the need for supplementing the assistance that is expected from the land consultants of the Resettlement Division, and because additional assistance is especially necessary in view of the extensive territory included, the extent of Federal lands in this area, and the varied land problems involved in both planning and resettlement programs."

EFFICIENT ARCHITECTURAL LIGHTING

With the increasing application of architectural lighting, or that in which illuminants appear as an integral part of decorations, the matter of efficiency of such methods has come to the fore. Design data for commercial and industrial lighting installations are sufficiently complete so that satisfactory results can be anticipated, but this condition does not exist in the field of architectural lighting. Here the effect to be obtained has been more important than the efficiency of the system.

"There are many ways by which desirable effects can be obtained by more efficient methods than have been applied in the past," says C. S. Woodside, who presented a paper on this subject at the annual meeting of the Illuminating Engineering Society in Cincinnati, September 4.

"New and unfamiliar materials, currently used in building and decoration and the wide variety of possible light sources, together with the constant struggle for the ingenious, have combined to make the problem for the architect and engineer quite complex.

"Recent modernization plans have included ceiling and wall coves as well as ceiling coffers. The Beaux Arts — I.E.S. competition this year indicated that student architects are giving more attention to this type of lighting. Analysis shows that many of them would not produce satisfactory results, from a standpoint of lighting efficiency.

"Basically, cove lighting is a form of indirect illumination wherein the wall or ceiling becomes a secondary light source. This being the case, it is quite essential that the wall or ceiling reflecting surface should be of a diffusing nature. For best results, the ceiling or coffer should be vaulted, with the light source located just beneath the spring of the curve."

In preparing his paper, Mr. Woodside classified cove lighting into three groups, namely:—(1) the continuous light source; (2) spaced lamps; and (3) individual projectors. His efforts have been directed primarily towards the subject of efficiency in the attempt to lift the practical value of cove lighting as an illuminant. The ultimate end, of course, is to make this kind of illumination more practical as well as decorative.

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USE OF VAPOR LIGHTING

In less than two years, vapor illuminants, notably the sodium vapor and the high intensity mercury vapor lamps, have passed from the experimental stage into the class of practical, efficient sources of artificial light. Prior to November 1933, when the first commercial installation of sodium vapor lamps to be sold in this country was put into service along a new highway in Port Jervis, New York, vapor illuminants were more or less of a laboratory plaything, indeed an adolescent light source needing operating facts to give it the aspect of maturity.

In the opinion of Oscar P. Cleaver, illuminating engineer, who reviewed to date the progress of vapor lighting before the annual convention of the Illuminating Engineering Society in Cincinnati, September 6, this new tool of the lighting engineer is destined to enjoy a tremendous use in the coming years.

"Operating efficiencies which are extremely high as compared to other artificial illuminants, was of course the chief advantage of the vapor illuminant and alone justified the cost and effort in early research and development engineering to determine the practical possibilities of this phenomenon that produces light by sending an electrical charge through a metallic vapor," says Mr. Cleaver.

"Since then, however, the industry has found that the color characteristics of both sodium and high intensity mercury lamps are a decided advantage in certain applications. Efficiency, by which 30 to 40 lumens per watt are produced, is still the important item and has been largely responsible in the encouragement of highway lighting installations in this country."

The illumination of highways, besides facilitating night-time traffic, is expected to bring the day when the number of accidents as a result of blinding highlights will be minimized, in the opinion of Mr. Cleaver.

"The sodium vapor light is nearly a monochromatic yellow and falls close to the point in the light spectrum where the human eye is most sensitive to vision. Hence its use on highways permits quicker and sharper vision for motorists, enabling them to see two thousand feet or more ahead without the need of their driving beams."

"In addition to its wide adaptability for highways, the sodium vapor lamp possesses possibilities for outdoor lighting purposes of an industrial nature. Factory and industrial yards, outdoor construction, and other diversified working areas lend themselves to the successful use of this light. It has been tried in lighthouses for fog-penetrating purposes; for bridge, street and tunnel lighting; for runway markers on landing fields; and for inspection lighting in certain other fields.

FEWER CONTRACTORS FAIL

During the first six months of the current year the number of builders that went into bankruptcy was nearly one-third less than that recorded for the comparative period of 1934, while the amount of the liabilities was almost halved. Should the same rate be maintained during the second half of the year as during the first one, when the total of bankruptcies was only 85 and the defaulted indebtedness but $3,613,676, the record for the twelve months of 1935 will establish an all-time low for the industry.

The complete insolvency record of builders since 1927, including the first six months of 1935, as compiled by Dun & Bradstreet, Inc., shows:

FAILURES AMONG BUILDERS

Year	*Number*	*Liabilities*
1927	353	$21,712,457
1928	489	27,891,511
1929	555	27,031,089
1930	417	20,263,506
1931	344	22,995,950
1932	497	42,079,919
1933	259	16,464,857
1934	242	11,010,426
1935*	85	3,613,676

*—January to June, inclusive.

These statistics of commercial failures are exclusive of applications under Section 77B. From June 7, 1934, when Section 77B of the new Bankruptcy Act became effective, to June 27, 1935, applications were filed under this section by three concerns in this industry.

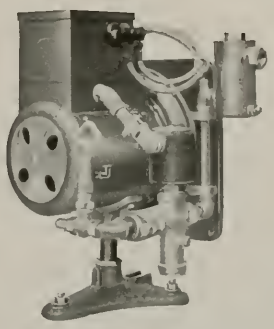
ARCHITECT GIVEN APPOINTMENT

Anthony Horstmann, San Francisco Bay architect, has been named appraiser and head of the architectural advisory staff of the Veterans' Welfare Board.

Mr. Horstmann is a licensed architect and has had considerable experience in construction of the better residential properties in the Bay area. He will work out of the San Francisco office of the board, covering San Mateo and San Francisco counties.

ENGINEERS HOLD ANNUAL DINNER

The annual dinner meeting of the Sanitary Division, San Francisco Section, American Society of Civil Engineers, was held at the Engineers' Club, San Francisco, Wednesday evening, September 18. The dinner was followed by a paper by J. J. Casey, City Engineer, on "The Sewerage Problem of San Francisco", and a talk by F. E. De Martini of the San Francisco Water Department on "Sanitary Aspects of the San Francisco Water Supply".



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PIONEER ROOFER IN NEW QUARTERS

A. K. Goodmundson, one of the pioneers in the East Bay roofing business, has recently moved his office and sales department to an attractive location at 2609 East 14th Street, Oakland. With thirty years roofing experience Mr. Goodmundson anticipates continued and increased patronage in his new quarters which are considerably more accessible than the old offices at 45th Avenue and Clement Street. The firm will continue to handle only high grade roofing materials, including Pioneer-Flintkote products, "Viskalt," and composition shingles and tile. With the rainy season close at hand many roofs will need attention and Goodmundson advice may be had without cost or obligation.

ADDITION TO SHOP BUILDING

W. Adrian, structural engineer, 417 Market Street, San Francisco, has completed plans for a one and two-story steel and concrete shop building to be occupied by the Victor Equipment Company. The site is the north side of Folsom Street, east of Fourth, San Francisco. Approximately $15,000 will be expended on the improvements which will include alterations to the existing building.

CONCRETE REFERENCE BOOK

The Portland Cement Association has ready for limited distribution the 1935 "Cement and Concrete Reference Book" which contains current statistics and general data about the Portland cement industry. A copy of the book may be obtained upon request to the Association, 33 West Grand Avenue, Chicago, Ill.

BERKELEY RESIDENCE

A. F. Dudman, architect, has completed and awarded a contract to H. K. Henderson for a two-story frame and stucco residence to be built in Greenwood Terrace, La Loma Park, Berkeley, for D. A. Beattie. The cost is $11,000.

HOSPITAL ADDITIONS

Two additions are planned to Sutter Hospital, Sacramento, Starks & Flanders, architects. One of the buildings will be used as a laundry and the other will contain an assembly hall for staff members of the institution.

RESIDENCE ALTERATIONS

Plans have been completed by W. R. Yelland, of Oakland, for extensive alterations and additions to the residence of John Heringer at Freeport, near Sacramento.

ADDITION TO FRATERNITY HOUSE

Plans have been completed by W. G. Corlett, architect of Oakland, for a two-story frame and stucco addition to the Theta Chi Fraternity house at Stanford University, Palo Alto.

MARKET FOR LUMBER

If a farmer needs lumber with which to repair his home, buildings or fences, that's not news. But if a farmer has the money for this purpose, that is news.

A government agency, the Federal Housing Administration, is now operating to enable the farmer to secure such money, and the Department of Agriculture is lending aid in directing the efficiency of its expenditure.

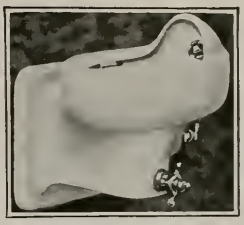
Money for renovating and repair is available through banks or other lending institutions cooperating with the Federal Housing Administration in the form of loans of from one to five years duration, in amounts to a maximum of $2,000. These loans may be repaid in seasonal installments or monthly at the discretion of the borrower and lender. The estimated income of the borrower at the time the application is made must be five times the amount of the annual repayments. Determination of the interest rate rests with the lender, except that it cannot exceed certain limits set forth by the Federal Housing Administration. With a good credit background these loans are readily obtainable for modernizing work on the farm.

The Farm Credit Administration, by an amendment to the Farm Credit Act of 1933, opens another channel for loans in connection with home alteration through local Production Credit Associations. Further than this, however, benefit payments from the Agricultural Adjustment Administration have been going out daily to farmers in all parts of the country loosing a flood of cash in the rural sections.

During the years 1933 and 1934, a total of 8,861,095 individual checks were sent out as benefit payments. The aggregate of these checks was $576,935,090.64. The largest single crop item covered was cotton, which topped the $100,000,000 figure each year. Included also were tobacco, sugar, wheat, corn and hogs. These payments represent a large increase in the purchasing power of the farmer and not being seasonal in the sense that the farmers of a section get all of their benefit checks during one certain month as in harvest, these payments should make for a better sustained market for farm needs.

There is scarcely a recent innovation or improvement that is not as equally adaptable to the farm home as to the city residence.

Rural better homes committees are being formed to aid the farmer in determining what is most necessary and most to be desired in the way of home modernizing and improvement.



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Building Outlook Much Improved

DURING the first half of 1935 a notable revival was witnessed in building activity, with operations reaching a four-year peak for the country, as a whole, although in many sections all records back to 1930 were surpassed. "Estimates made at the beginning of the year," Dun & Bradstreet, Inc., state in a special review of building operations, "as to the extent of recovery during 1935 have been revised upward, as spectacular increases are being recorded for residential building, and industrial construction reflects an appreciable improvement, as plans are released for plant extensions and the erection of new factory units.

"Progress practically has been uninterrupted since the first of the year, with the most rapid pace attained during May and June, when seasonal recessions ordinarily appear. To the new building work under way has been added a steadily widening volume of modernization work made possible by loans obtained under the provisions of the National Housing Act, and the privately financed undertakings which are in the ascendency. Financial institutions have ample funds for private building, and money for residence construction may be obtained without difficulty at 5½ per cent.

"Dealers in builders' supplies have benefited by the improvement, with sales for the six months averaging from 35 per cent to as high as 60 per cent over the comparative totals of last year. Taking into consideration the decreased vacancies, advancing rentals, fewer foreclosures, the more frequent mortgage applications, and the general betterment of the real estate market, it is apparent that the long-awaited upturn has started."

Permits for the first six months of this year aggregated $253,273,658, compared with $167,384,523

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for the same period last year, a rise of 51.3 per cent. In comparing this year's total with the depression low of $140,420,513 during the first half of 1933, an increase of 80.4 per cent is revealed.

"Of the three major divisions of the construction industry, public works, residential building and commercial construction, it is the second one that noteworthy progress has been made during the past year. Although it is too early to determine whether the present upturn will hold, it already has gained sufficient headway to attract the attention of banks and other institutions that are underwriting mortgage loans, realizing the possibilities inherent in the F.H.A.'s mortgage insurance program.

"With the surplus of city homes decreasing from month to month, while the desire for better living conditions is growing with the general expansion of business, new residential building during the first six months of the current year ranged from 50 to 200 per cent in excess of that for the comparative period of 1934. These percentages of increase ran even to higher figures, when inclusion was made of the mounting volume of repair work and the expenditures for long-needed rehabilitation.

"Based on the progress thus far recorded, conservative estimates point to a net appreciation of fully 75 per cent in residential construction for 1935, when compared with the total for 1934, as the demand for homes is becoming stronger, augmented by the increasing rate of marriages and the abatement in the "doubling-up" of families. Nearly 50 per cent of all the building in this division now is being carried on under contract.

"The acceleration of operations at many of the leading industrial centers and the improvement in general business conditions have resulted in a shortage of certain types of residential property. Some of the large rental agencies report that vacancies now are running at

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less than 1 per cent. Single homes renting under $60 a month are at a premium in many cities, although there is a moderate selection of the higher-priced homes still available. Apartments and income property are almost completely filled, with next year's leases already being renewed."

MARBLE

Marbles are Nature's broken colorings, very hard for the decorator to imitate. Found in all parts of the world in untold variety, they are calcareous stone of compact texture, taking high polish—crystallized limestone stained by various minerals and non-mineral salts in hydro form, by vegetable matter and other stones. They contain the same salts that make various color pigments, and there is not a color in marble which cannot be reproduced. Marble colors appear brighter on account of its crystalline structure and power to reflect light. To simulate this, the painter must use thin glazes, aiming at translucency. Real marbles are distinguished by individual character veinings and formations. The panel for imitation must be filled level and painted without brush marks, for nothing so disfigures marbleized faces as straight lines or crevices. Some marblers stipple lightly the last coat to make a slight granular texture as key for superimposed color. Varying pressure and lightness of touch in softening are important. The decorator must study each marble and make sure he is trying to reproduce the right one. To specify: St. Annes, a Belgian marble, is fossil, variegated or Brocatello, with minute shells or erinoids embedded in the matrix, the ground looking almost textured, veinings very broken, with hardly a continuous line, yet showing a slight form-lay of the strata. Black-and-gold found in Italy is variegated or Brocatello, that from the Pyrenees is Breccia type, not so elegant in color and tone, its veinings meandering vertically, not breaking out all over as in some mar-

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bles, its lighter grays forming part of the ground or matrix, which may be put in first, but never painted between veinings.—*Journal of Decorative Art*, Manchester, England.

PREFABRICATION

Prefabrication is talked everywhere. Factory-built houses at half the price, and twice as good, are promised. But two obstacles stand out, even if homeseekers want such housing, which is very doubtful. Union labor, seeking to increase employment, does not take to the idea. Moving the prefabricated house from shop to building site meets cost and difficulty of distribution. Labor influence is strong in cities, where trucks might help the moving. In country districts, delivery costs eat up shop production savings. Low cost can be realized only on volume production. So this main factor in prefabrication seems to disappear, leaving the undesirable monotony of standardized forms and a few more disadvantages, including individuality, which has held a large niche in our homes. Semi-prefabrication has been successful on many fronts and is extending its sphere as equipment and appliances become more important. This trend should continue, but perhaps not far enough to dislocate local labor, which holds much closer contact with home-seekers. It all may bring better planning, better selling, better job performance.—*American Builder*.

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JOINT BIDS

Glen V. Slater, assistant registrar of contractors, calls attention to an amendment to the Contractors' License Law, effective September 20, making it impossible for two individually licensed persons or firms to submit a bid jointly, or undertake work of a contractor, without securing a new license for the combination organization.

This amendment adds the following new paragraph to Section 1 of the Contractors' License Law:

It shall be unlawful for any two or more persons, firms, copartnerships, corporations, associations or other organizations, to each of whom has been issued a license to engage in the business or act in the capacity of a contractor within this State in accordance with the provisions a bid or otherwise act in the capacity of a contractor as herein defined within this State without first having secured an additional license for acting in the capacity of such a joint venture or combination in the manner and in accordance with the provisions of this act as provided for an individual firm or corporation."

WAREHOUSE

Albert C. Martin, architect, 233 Higgins Building, Los Angeles, has been commissioned by the California Walnut Growers' Assn. to prepare plans for a large walnut storage warehouse to be erected on a 15-acre tract on the south side of Fruitland Avenue, between Pacific Boulevard, and Soto Street, Los Angeles, for the association. G. B. Ridley, association engineer, is in charge of details for the owner. The building will be a one-story, U-shaped structure, 700 feet long and 420 feet wide, with a floor area of 280,000 square feet. It will have steel columns and steel trusses supporting a mill construction type roof, fireproof walls, wood purlins and heavy wood roof deck.